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# The Canadian Medical Association Journal

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No. 1

## PREGNANCY AND TUBERCULOSIS\*

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### PART I—THE EFFECTS OF PREGNANCY ON TUBERCULOSIS

THERE is plenty of scope for discussion, and room for difference of opinion, when a tuberculous woman is found to have become impregnated, as to what can be done and what should be done about it; but there is no difference of opinion as to this, that in most cases, and in the long run, the child-bearing cycle will have a very unfavourable effect on the woman who has pulmonary tuberculosis.

Among the practitioners of an earlier day, chiefly men interested in obstetrics, who perhaps did not follow their patients much beyond the time of delivery, there was an idea that a certain proportion of tuberculous women were actually helped by pregnancy. Perhaps some anæmic or bronchitic, nervous or under-par women, wrongly classed as consumptive, may have been improved, even permanently.

Even tuberculous women may frequently show improvement, usually temporary, during some part of the term of pregnancy. In a recent paper which paints this silver lining a little broader, perhaps, than usual, Dr. J. H. Elliott points out that the pregnant woman, if she eats, digests and assimilates well, has the advantage of utilizing food elements better than her usual, and "A form of hypernutrition, the products of which are intended for the foetus, can be very useful to

the mother who thus derives a certain profit from her greater histogenetic activity." However, in the later months of pregnancy, "A demand for decalcification of her own osseous system, the resources of which have already, perhaps, been depleted on account of her tuberculosis . . . . leads to a condition of demineralization unless digestion and assimilation are active."

Elliott's conclusion is not so very different from the dictum of Bacon that *many* tuberculous women do well in the first three months of pregnancy, *fewer* in the second three months, and *very few* in the last three months.

And the termination of pregnancy is by no means the end of danger. The most fateful part of the child-bearing cycle for the tuberculous woman begins with parturition does not end there. Bacon states that one-third of child-bearing women who are actively tuberculous die within a year following labour. Of two hundred child-bearing women treated in the Manitoba Sanatorium, reported upon in 1917, the breakdown to tuberculous disease appeared to have occurred during the nine months of pregnancy in twenty-five per cent., or at the rate of nearly three per cent. per month; in the one month following labour, in twenty-four per cent., or at the rate of twenty-four per cent. per month; during the next twelve months, the period of lactation, in thirty-six per cent., or three per cent. per month; and in the interval between child-birth cycles, in fifteen

\* (Part 2, dealing with "The Treatment of Tuberculosis Complicated by Pregnancy," will be published in a later issue.)

per cent., about one per cent. per month. The damage in these cases became apparent in the one month following parturition as often as during the whole nine months of pregnancy, or eight times as often as in any other one month in the cycle; and of break-downs during the cycle, only one-fourth occurred before, and three-fourths after the child had been born.

Pregnancy, then, is a complication, and maternity often a disastrous complication of pulmonary tuberculosis. Funk reports that thirty per cent. of married women, patients in the Phipps Institute at Philadelphia, dated the onset of acute symptoms of tuberculosis to pregnancy or parturition. Davis of Milwaukee quotes Trembly of Saranac as stating that among 250 tuberculous mothers, active disease in 63 per cent. was first discovered after the birth of a child. In 29 per cent. of the tuberculous women observed by Schauta the disease originated or became recognizable during pregnancy or the puerperium. Thirty-seven per cent. in Fishberg's series considered that they had no symptoms of tuberculosis until after one or more childbirths. Jacob and Pannwitz, to quote still farther from data collected by Norris and Landis and also by Davis, found that 25 per cent. of 337 tuberculous women attributed the origin or aggravation of their tuberculosis to pregnancy. Maragliano reported 59 per cent. According to Scarborough 47 per cent. of 200 tuberculous married women in the Iowa State Sanatorium considered that active symptoms first appeared after childbirth. In the Ohio State Sanatorium, Douglas and Harris found among mothers 37 per cent. in whom pregnancy appeared to be the cause of tuberculosis activity. Pregnancy was found according to Norris and Landis to have had a bad influence upon the course of pulmonary tuberculosis, in 75 per cent. of the cases of Lebert, 64 per cent. of those of Deibel, 70 per cent. of Rosthorn's, 73 per cent. of Herman's, 94 per cent. of the patients of Pankow and Kepperle, 77 per cent. of Reiche's and 38 per cent. of Freud's. Von Bardeleben considered that pregnancy gave an unfavourable turn to tuberculosis in 71 per cent. of his cases and was fatal in 47 per cent. McSweeney and Wang conclude that in some women "pregnancy and labour whip a slightly active tuberculosis into a rapidly advancing and quickly fatal disease."

The saying has been attributed to Dubois and also to Louis that a tuberculous woman may bear the first childbirth well, the second with difficulty, the third not at all. Of the women in the

Manitoba Sanatorium series already referred to, the first childbirth seemed to have been the cause of one-fourth of the break-downs, the second of one-fourth, the third of one-fourth and childbirths beyond the third, of the remaining fourth. A miscarriage seemed to have been more damaging than a childbirth. The whole series of tuberculous mothers showed on an average an advance in the progress of their disease about 20 per cent. greater than 1900 other Sanatorium patients.

After all allowances have been made, the conclusion cannot be avoided that child-bearing has a definite place in favoring the progress of tuberculous disease. It can break down resistance, light up anew old pre-maternal lesions and bring about the first sign of breakdown in one who has never before shown evidence of the disease.

This is not strange, but only what might be expected, when the events of the child-bearing cycle are considered in relation to the tuberculous woman. Pregnancy puts an added strain upon the whole nervous organization and on the organs of assimilation and elimination. Nature's arrangement for better assimilation during this period is very often counterbalanced by impaired appetite, nausea and vomiting, though it is said that tuberculous women get off easier than others. Even if metabolism should be bettered the demand is also increased. What vital reserve a tuberculous woman may have, which should be consecrated to the arrest and cure of her disease, is robbed from her by pregnancy. The actual physical burden of a gravid uterus is considerable. The lungs, with other viscera, are pressed upon, perhaps with some benefit to pulmonary disease, but if so, with corresponding harm when the pressure is suddenly removed at parturition. Van Voornveld believes that the sudden re-expansion of a compressed lung after childbirth is the greatest single menace to tuberculosis in the whole cycle, and recommends artificial pneumothorax as almost specific treatment in case of pregnancy in a tuberculous woman.

Parturition with laceration, loss of blood, anaesthesia and changes in pressure involves an amount of shock comparable to that of a laparotomy. Over-strain and violent respiratory efforts are not only most exhausting to an already enfeebled woman but tend also to force infective material from old foci into new lung areas. In autopsies upon women who died of tuberculosis after labour, Hanan found such new areas of infiltration. Van Voornveld considers that a miliary type of tuberculosis may thus be set up which



may simulate and be confused with puerperal sepsis.

Lactation can be avoided, and needless to say, should be; indeed must be; but child care is even more burdensome on that account. The birth of a child into a home doubles work for the mother who is nurse and housekeeper as well, and disturbs rest. Few mothers can make pregnancy and child care their one occupation. For most, these are new burdens which must be added to a load already heavy, sometimes heavier than can be borne.

To believe that such a degree of strain and stress, so great a disarrangement of habit, such interruption of rest, may break down a woman with partly patched up tuberculosis, or, added to other burdens, one with latent disease which has not yet shown open symptoms, it is not necessary to believe that childbirth creates any specific predisposition. The *quantity* of the over-strain, apart from the *kind*, explains the breakdown. If the ordinary routine of an ordinary woman under ordinary conditions has resulted in breakdown to tuberculosis, can the same woman, with the same disease still latent, add to her ordinary burdens the extra strain of pregnancy, childbirth and child care and expect to avoid harm? For the woman who carries the mortgage of a previous tuberculosis, child bearing, which will almost certainly mean expenditure of strength away beyond income, is a very risky speculation. If it is ever to be considered, all resources must be investigated and the whole cost counted.

Should a woman known to be, or to have been actively tuberculous, ever risk maternity? Like most large questions this cannot be answered categorically. Even normal maternity is not altogether without danger, but always means sacrifice, and many women who have been tuberculous will demand motherhood even if their danger and their sacrifice are to be beyond the usual. Where should the line be drawn?

Pregnancy should not be allowed in a woman who has *ever* reached the anatomical far-advanced stage, or *ever* had far-advanced symptoms. By "far-advanced" I do not mean coarse râles, a hollow cheek, and a cavernous cough, but a stage of the disease consistent with very fair appearance, popularly considered as "early" and unfortunately usually described also by many physicians as "early" or "incipient."

Pregnancy should never be allowed in the presence of active symptoms, however slight, or connected with however slight a lesion, and not for years after such a lesion and such symptoms have cleared up.

It should not be allowed until the disease, which has not at any time been severe, has been apparently arrested for at least three years, or still longer if bacilli have ever been found in the sputum.

When may pregnancy in a tuberculous woman, or rather in one with a tuberculous history, be considered?

If, when the disease was active, the lesion was small or moderate in extent; if the course was in every respect favorable, the arrest definite; if there has been freedom from symptoms for from three to five years; if, during that interval, strength and resistance have been well tried out at ordinary work with no evidence of weakening or break-down; if at the same time living conditions are good; if it is possible during practically the whole period of pregnancy and child-care to have, if necessity should arise, release from other burdens, and if there can be experienced, cautious supervision of the mother during the whole period by one who knows the ways of tuberculosis, pregnancy can be allowed in a tuberculous woman with some confidence that it will not lead to a breakdown. But strait is this gate, and narrow this way, and few there be of the women who have ever been tuberculous who can go in thereat.

Women who are or have been tuberculous should be plainly and frankly told of the danger of pregnancy. I have made it a rule to let no woman of child-bearing age, who was definitely tuberculous, whether married or unmarried, go from under my care without such a statement, and have discussed the same matter with the mothers of younger girls. While some with a history of tuberculosis may risk maternity, these are the carefully chosen few, and for the many the old rule holds that the tuberculous woman should not marry, or if married should not become a mother. The dangerous association of maternity and tuberculosis should be more widely known. Indeed, there would be no harm in having people in general realize that while motherhood in a normal woman is a normal function, in a woman weak or ill it is pathological.

## METHODS OF STUDY OF EARLY DIABETES\*

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IN the study of no other non-infectious disease has there been closer collaboration between laboratory and clinical investigators than in that of diabetes. Indeed this was one of the first diseases in which such collaboration was attempted and it is significant that the most important steps in the advance of knowledge in this field have usually been made by men who have themselves been thoroughly familiar with the experimental investigations, often by actual participation in the work, while at the same time engaged in clinical practice.

Laboratory methods have been more particularly used in the diagnosis of very early cases and in determining the severity of the disease in late cases, particularly in following the effects of treatment and in the detection of threatening coma. My remarks will concern the early diagnosis exclusively.

The earliest symptoms of the disease consist in a weakening of the powers of the body to utilize carbohydrate, and it will be simplest if we review more or less in chronological order the various methods which have been employed to gauge this. We shall incidentally consider the limitations of each method.

1.—*Assimilation limits.* Worm Müller, Hofmeister, von Noorden and others found that 100 gm. glucose did not cause glycosuria in healthy persons, and von Noorden stated that if it did so the person was liable later to develop all the symptoms of diabetes. He elaborated a therapy based on the principle of allowing carbohydrate just short of the amount which could be assimilated. There are several objections to this method. In the first place, the rate of absorption from the intestine and consequently the rate of emptying of the stomach, as well as the state of intestinal digestion, must be important factors in the determination of the assimilation limit. Even if we discount this digestive factor, the taking of large amounts of glucose all at once is

highly abnormal since it suddenly floods the blood with an excess to which it is unaccustomed. Even normal substances become poisons when they are present in the blood in excess, and the ability of the organism to excrete the excess need not be proportional to the efficiency of its carbohydrate metabolism. Quite apart from these general considerations there are certain practical objections to this method; for example, when more sugar is given than that which represents the assimilation limit it does not produce proportional increases in sugar excretion, and when the amount is far beyond 100 gm. in many normal individuals, it may be impossible to cause glycosuria. Both these results indicate that the idea conveyed by an assimilation limit is unsound and that many obscure factors are involved in determining the incidence of glycosuria following excessive ingestion of sugar.

2.—*Utilization value.* Recognizing the above-mentioned objections, Blumenthal tried to determine the extent to which sugar solutions could be injected intravenously at short intervals without causing glycosuria. He found that about 0.8 gm. glucose per Kg. body weight and hour could be utilized in this way without causing glycosuria in rabbits (cf. Diabetes). The objection to this method in the diagnosis of diabetes in man depends on the obvious technical difficulties and on the fact that the injections are not really continuous.

3.—*Saturation values.* Woodyatt following the suggestions arising out of Blumenthal's work and supported by the theoretical consideration that sugar is being constantly produced and used in the body—that its metabolism is dynamic and not static—devised a pump by which dextrose solutions could be continuously injected intravenously at varying rates. By this means the rate of production was maintained at a constant high level which could be progressively raised until sugar appeared in the urine. At an amount just short of that which causes glycosuria (*i.e.*, the saturation level) it is plain that sugar utilization must be proceeding at the same rate as the injection. It is interesting that the saturation

\*Contributed to the symposium on Diabetes at the meeting of the Ontario Medical Association at Niagara Falls, May, 1921.



level was found to stand at 0.85 gm. glucose per Kilo body weight per hour, both for man and the laboratory animals. This constancy in level is in itself a fact of great significance. In a man of 70 kg. it means that as much as 60 gm. of glucose can be utilized in 1 hour, or 1440 gm. in the course of 24 hours. It was further observed in connection with these experiments that the degree of dilution of the dextrose solution did not affect the results. Thus must indicate, either that any tendency to blood dilution, due to injection of the weaker solutions, must be immediately rectified by excretion of the excess of water, or, that it is not the concentration of dextrose in the blood but the total amount of this substance in the body fluids that counts—a rather difficult mechanism to comprehend.

4.—*Blood-sugar curves.* In measuring assimilation limits towards sugar or starch given by mouth, there are, quite apart from the rate of absorption from the intestine, three functions in the body upon the activity of which the excretion of sugar depends; the glycogenic function of the liver, the utilization (and glycogenic) function of the muscles and the sugar excretory function of the kidneys. In order to eliminate one of these, namely the excretory function of the kidneys, it has become the custom to examine the concentration of sugar in the blood. This has become feasible by the introduction of rapid and accurate clinical methods for determining the percentage of dextrose in small quantities of blood. There are two periods during which these estimations can be expected to be of value: (1) some time after absorption of carbohydrate from the intestine has been completed; (2) at varying periods after the ingestion of carbohydrate food. In the first case we determine the level of blood sugar concentration at which the balance between production and utilization of sugar is taking place in the organism. This level is always found to be raised in the later stages of diabetes, but it may be perfectly normal (at about 0.08 per cent. in the incipient stages of the disease.).

In the second case, we determine the combined efficiency of two oppositely acting functions, namely, the function of the liver and the utilization function of the tissues, and evidence is gradually accumulating to show that the behaviour of this so-called post-prandial blood sugar curve is valuable in the diagnosis of early diabetes. It will therefore be important for us to consider somewhat more in detail the salient features of this method of investigation.

A specimen of blood is taken from the arm vein the first thing in the morning, and immediately afterwards the patient is given 100 gm. dextrose made into a lemonade, specimens of blood being again examined, preferably at half-hour intervals, for 3 or 4 hours thereafter, and the results plotted on coordinate paper with percentages on the ordinates and time intervals on the abscissæ. Specimens of urine are also examined at the same time as the blood.

There are three features of the curves to which attention must be directed, the height to which it rises, the time at which the maximum occurs and the time it takes to return to the normal level. Considerable variation occurs among different individuals but in general the maximum should not go above 0.16, it should occur in from 30-60 minutes after taking the sugar, and the normal should be regained in two hours. Furthermore, in a strictly normal individual no sugar should be found in the urine by the usual clinical tests. Occasionally, a person in whom there is no reason to believe that any tendency to diabetes exists may show a much higher curve, although as far as can be judged from the literature, the opposite, namely, a person with decided premonitory symptoms of the disease, never gives a normal curve. Humphreys and Williams, for example, have recently published observations which when plotted in curves show practically no difference between normal persons and those exhibiting diabetes in very mild form. The conclusion which I would draw from the recorded observations is that the blood-sugar curve taken alone is not sufficient evidence upon which to base a diagnosis of diabetes in its very earliest stages, except perhaps in the hands of those who have had very extensive experience with the disease.

If sugar is found in the urine with a blood-sugar curve that does not rise above the level of 0.17 per cent., it indicates that the kidney is allowing the sugar to leak too readily into the urine. In the great majority of normal persons no clinically detectable glycosuria occurs below this level, and if it does so it indicates that the kidney is allowing sugar to leak too readily into the urine, the condition being styled renal diabetes. Obviously this condition can be diagnosed with certainty only provided the blood and the urine are both examined in the above described manner. It is a condition that is probably much commoner than was suspected before the introduction of these modern methods of diagnosis, although its existence was suspected in certain types of cases in

which small percentages of sugar were repeatedly found in the urine, often quite independently of the taking of food, and without any of the other symptoms of diabetes. It is interesting that a similar condition can be produced experimentally by giving the drug phlorhizin. It is obvious that it is of extreme importance that means be taken in all cases of mild glycosuria to test the renal threshold for sugar. On the result of the test depends the prognosis and the proper treatment of the case.

This brings us to an aspect of the diabetes problem which seems to me to be of great importance, namely the precise significance of the renal threshold. Although it is usually assumed that the urine of normal persons is sugar free, this is not strictly the case. It is only sugar free in so far as the clinical tests are concerned, but if precautions be taken to remove from the urine various substances which make it impossible otherwise to detect the sugar, then it is found that normal urine contains sugar of which about one-half ferments with yeast and is presumably glucose, the other, non-fermentable half being some sugar the precise nature of which is at present uncertain. On an ordinary diet there is usually from 1 to 1.5 gm. of this sugar in the 24 hours urine, but this varies according to the amount of carbohydrate in the diet. Benedict and his co-workers have recently investigated the relationship which exists between the diet and the sugars of normal urine, and they have made the interesting discovery that the ingestion of even small quantities of dextrose cause decided changes, the most conspicuous feature of which is a diminution in the non-fermentable moiety, which is always greatest in the early morning urine. This normal excretion of sugar is called glycuressis. As carbohydrate increases in the diet the fermentable moiety rises, and Bailey has shown that up to a percentage of 0.17 in the blood, the sugar of the urine runs approximately parallel, indicating that the kidney is more or less passively allowing the sugar to escape, but that beyond 0.17 in the blood the percentage in the urine rises very rapidly out of all proportion to that in the blood. This would appear to indicate that above this level the kidney assumes an active secretory function towards the blood-sugar. Renal diabetes therefore is char-

acterized by the development of an active sugar-excretory function by the kidney at a blood-sugar percentage below 0.17.

These observations indicate that even a normal person is diabetic in a certain sense, and that the diagnostic sign of glycosuria is more or less arbitrary since it merely represents a degree of glycuressis capable of causing reduction by the ordinary clinical tests. Taking all these facts into consideration, one may ask, what then is the proper routine to adopt in the diagnosis of early stages of this disease? The urine should be examined by a reliable clinical test during at least two periods of the day, namely, the night urine and the urine voided within three hours of the largest meal of the day. To examine a sample of urine passed without regard to the interval elapsing since the last meal was taken is quite likely to be misleading, for even in decided cases of mild diabetes urine passed some time after food ingestion may be quite free of sugar. If no sugar is found in any of the specimens, no clinical diabetes can exist. If sugar is found in any of the specimens the blood-sugar should be examined and a careful comparison made between the sugar of the blood and urine in order to see that the case is not one of renal diabetes. The objection to this method in general practice is that facilities do not exist for estimating the blood-sugar outside the larger towns and cities. With the great simplification in the technique of blood-sugar estimations, the better opportunities for learning the technique and the increasing availability of the necessary apparatus, the time is not far distant when a great many practitioners will be in a position to make these estimations. I do not mean that every practitioner in the community should specialize in laboratory methods, but I can see no reason why a certain number should not do so and the others employ them as specialists. The technique is certainly no more exacting than that necessary for the detection of the tubercle bacillus or a Wassermann test. I need scarcely point out to this audience of practical men the extreme importance of early diagnosis in this disease. Everyone who has had extensive experience with it agrees that in most cases the onset is very insidious and that proper control of the diet will very often prevent its progress.



## A COMPARATIVE STUDY OF MEASLES AND GERMAN MEASLES

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**D**URING the three years 1915, 1916 and 1917 we had an unusual opportunity of studying these two diseases at the same time and in large numbers, and we felt that perhaps there might be some interest in reporting our observations.

During these three years there were admitted, in all, classed as measles, 821 patients, of whom we consider 124 to have had German measles.

Although some authorities claim that there is but one disease, we do not see how it is possible to reconcile our findings with that view; and while some cases certainly have been difficult to classify, on account of the mildness of the physical signs, ordinarily there has been little room for doubt, and the cases have, in nearly every instance, been sent in to the hospital correctly diagnosed.

Certain outstanding features tend to differentiate the two conditions from the outset:

1. *The history of onset.* In German measles there is neither that characteristic three-days' coryza and malaise preceding the rash nor is there the irritating cough. In practically all the German measles cases we get the same story: the patient on awakening found the face or body covered with a rash, and associated with this rash in some cases was some drowsiness or headache.

2. *The temperature.* On admission to hospital the temperature in our German measles cases averaged 99.1 to 99.2; in only 5 cases did it go above 101, and there was in each case some complication to account for the rise, whereas in our measles series the average temperature was over 102 at the time the rash was well-defined.

3. *The age incidence.* We were surprised, on studying our figures, to find how few children were seen with German measles; only six were admitted under ten years of age. We recognize, of course, that in this disease on account of its mildness children would not be sent to the hospital as frequently as adults, but on the other hand we have had adults from institutions in which young children were undoubtedly exposed to the infection. One such very interesting situ-

ation arose when the assistant head nurse of a baby hospital developed typical German measles and was isolated in her room. On the fifth day of her illness occurred the disastrous fire in the Grey Nuns' building, in consequence of which a great many infants and young children were shifted to this institution, necessitating the use of the full staff, and with permission this nurse went on duty again, but not one case developed among the babies.

4. *The rash.* In a typical case of German measles you get two types of rash: on the limbs and buttocks you find a patchy rash resembling that of true measles, while on the face, neck and chest, anteriorly and posteriorly, is found a well-defined punctuate rash resembling that of scarlet fever.

Many cases of course do not show much rash, and that little only for a very short time, but the characteristic feature of the rash we believe is that you find spots suggestive of measles about the buttocks and legs, but never on the face: here they are of a more punctuate pin-point appearance and tend to coalesce into a general flush.

In measles, on the other hand, the rash is constant, first coming out as a rule on the forehead, behind the ears, and on the face, and shortly afterwards on the chest and arms. The spots are small and not intensely red at first, but as they enlarge they become more dusky red and in about 24 hours the rash is widespread over the body. The patches now become larger, are of a more purplish hue, and become raised above the surface of the skin and are distinctly palpable. Some of these patches meet and appear to coalesce, but in every case one can find areas of normal skin between them. But from the rash alone the diagnosis was frequently almost impossible, as is well illustrated by the following case: a man aged 21 (No. 661-16) was sent from the venereal ward of one of the city hospitals, where he had been under treatment for gonorrhoea, with a rash very suggestive of measles. Three different

diagnoses were made by responsible physicians: measles, German measles, and secondary syphilis. He had a positive "Wassermann," but the rash faded in a couple of days without any treatment and without any other signs of the secondary stage of syphilis, so we finally felt convinced that he had had Rubeola.

Another man, who from the history of exposure was thought to have a mild type of true measles was so admitted into the ward. On the seventh day in hospital he developed a typical measles rash, preceded by coryza and photophobia, etc., by which we were satisfied that the original diagnosis was incorrect.

More than one copaiiba rash was sent to the hospital during the three years, but the difference is fairly easy to distinguish when one is seeing cases day by day and consequently no harm was done.

5. *The glandular enlargement.* The enlargement of the glands in the posterior cervical region was very striking in the German measles cases and was not part of a corresponding general lymphatic involvement, nor was it associated with any signs of toxæmia. This was noted as marked in 62 cases, exactly 50 per cent. of this series.

On the other hand, in true measles 75 per cent. of the cases showed some enlargement of the glands of the neck, but it was more or less proportionate to the degree of toxæmia and was but a manifestation of the general lymphatic reaction.

6. *The liability to infection.* The extreme contagiousness of measles was well illustrated by the epidemic which supplied most of our material. Apparently beginning south of the Lachine Canal in October, 1916, it spread rapidly in two lines up into Westmount and up through the centre of the city to the North End, where it was prevalent throughout the succeeding winter.

The contagiousness of German measles appeared to us less marked than that of Rubeola, but one must bear in mind that many cases undoubtedly escaped observation. One interesting case was seen in which the patient had had a letter from her husband overseas while he was suffering from German measles. At the time she developed the disease no other source of infection could be traced and the question was asked, could the letter transmit the disease?

*The question of immunity.* In no instance among our admissions did we have any evidence of a second attack of German measles, but quite a few were recorded among the true measles cases,

although most authorities assert that this is a rare event. An interesting relapse or re-infection occurred in the practice of one of us outside the hospital limits. A girl (Violet N.) aged six years, was seen on December 20th with a typical measles rash, temp. 103, coryza, etc., and the disease ran the usual course of a mild attack. On December 30th, a sister (Lizzie N.) aged seven and a half years came down with typical measles, followed two days later by the baby, aged four years. On January 11th Violet again took ill, with a temperature of 102, coryza, cough, etc. and this was followed in a couple of days by another typical measles rash over the whole body, just 22 days after the original rash had appeared.

*The period of incubation.* Our information on this subject so far as German measles is concerned is too vague and fragmentary to be of any value.

But we have had many opportunities of watching epidemics of Rubeola in institutions, and have noted with what unerring regularity a ten days' interval has elapsed between groups of cases.

*Koplik spots.* These were only seen in a small percentage of the admissions and those mainly the institutional cases which were sent in early. In no case of German measles were there any observed.

*The complications.* In German measles complications were practically absent. Three cases in our series (all nurses) developed adenitis, and two of these went on to suppuration, while 10 either had on admission or showed shortly afterwards tonsillitis, and finally one case developed laryngitis. One patient while in hospital developed pneumonia accompanied on the 5th day by empyæma sufficiently marked to demand immediate surgical interference. He died a few days later—the only death among the German measles cases.

The complications of rubeola, however, were numerous and serious.

Bronchitis, although not so universal as in typhoid fever, was very frequent, while at least 95 per cent. of the cases complained of cough on admission; this is in marked contrast to the German measles cases of whom only seven made any complaint of cough when admitted.

Broncho-pneumonia was present on admission or developed subsequently in 35 cases and was the condition we learned to dread more than any other. Of the 35 cases, 15 died while in hospital, and that some of the others suffered subsequently after leaving the hospital we feel certain in the light of previous experience.



*Suppurative otitis media*, was, with the exception of bronchitis, the most common complication in this study; there were 85 cases in all, while catarrhal ear conditions not going on to suppuration were equally frequent.

We are of opinion that our percentage of cases (12 per cent.) showing suppurative otitis media is much more than one ordinarily finds in private practice, but many of our cases came to us in a very miserable state, with profuse discharge from the eyes and nose, and quite possibly these served as a focus of infection to others.

That only four of these cases went on to acute mastoiditis is, we feel, a subject for congratulation to the nursing staff. On the other hand, many cases continue to have a discharge from the ear for many weeks if not months after their recovery from the measles. With the ever-present danger of acute mastoiditis, our disposition of late has been to favour a simple mastoid operation in these stubborn cases.

*Rhinorrhœa* in a troublesome form, comparable to the otitis media, was noted in 24 cases and was found very resistant to any treatment, lengthening the stay in hospital considerably.

*Laryngitis* was much more common and more dangerous in our series than one would expect from a perusal of the literature. It was noted as severe in 32 cases, and in 12 of these there was an associated œdema of the glottis which necessitated intubation in 6 cases and a tracheotomy in one other. This œdema was exceedingly distressing to the patient and was the cause of death in five cases. The exact etiological factor giving rise to this condition is still obscure. In two cases at autopsy a Klebs-Loeffler bacillus was obtained, but in no single instance was any membrane demonstrable. Moreover, after the first case, in which the autopsy report showed diphtheria bacilli present, all patients with severe laryngitis were given 10,000 units of antitoxin. Clinically, the results were not what one looks for in diphtheria; and in one of the cases intubation was necessary 5 days after the administration of the antitoxin. In our experience the only treatment which gave any relief to the severe grades was intubation and even that in some proved but of temporary value. These cases were all very ill and toxic and it seemed to us as if the involvement of the mucous membrane so common in the nasal passages had extended down into the larynx and trachea.

The alimentary system was comparatively little involved. Vomiting and diarrhoea as a symptom

of onset was noted in 7 per cent., and acute enteritis occurred in 4 cases during the course of the disease. In all four cases the enteritis was very severe and two of them died. The number of cases is too small to draw conclusions from, but enteritis we are convinced is one of the very grave complications of measles. Our dread of this complication arises from a group of cases not included in this series in which the mortality was very heavy, all the cases showing at autopsy acute hæmorrhagic enteritis more especially of the large bowel.

Stomatitis was very frequent but the source of many of our cases may explain this disparity between hospital and private practice. In the genito-urinary system complications were very rare. Febrile albuminuria was common for a day or two at the onset but no single instance of nephritis as a sequel is recorded.

Vaginitis was found occasionally in this ward, as in all other hospital wards where children are treated.

The effect of measles on menstruation was very distinct. It caused practically all the women patients to menstruate within a few days after admission regardless of their previous menstrual history; but, contrary to rule, it had no effect on the few pregnant women who came under observation.

*The eyes:* Although photophobia was present in 85 per cent. of our cases, we believe that in none of them was any permanent injury done to the eyes; the majority of the cases responded very rapidly to rest and routine washing with boracic acid.

The treatment as carried out in the Alexandra Hospital was purely symptomatic. All patients were kept in bed for about 10 days, and on a milk diet for the first half of this time; usually we have felt free to discharge them, if devoid of complications, at the end of two weeks.

During those three years, when measles were epidemic in the city and vicinity, there were 48 deaths in this Service, a percentage of 5.7. This is undoubtedly heavier than one finds in private practice, but as is the case in all hospitals we received a very large number of very sick and of dying cases and a large number of institutional children who were congenitally unfit to withstand disease.

As already reported 15 cases died of bronchopneumonia, 5 died of œdema of the larynx and 2 of acute enteritis. Of the others, 3 died of lobar pneumonia, 2 of miliary tuberculosis, one of pul-

monary abscess associated with a streptococcic septicaemia and the others either of exhaustion, toxæmia, or within a few hours after admission.

Unfortunately, owing to stress of work and a very reduced staff, autopsies could only be made on such cases as seemed to demand them for some special reason.

*In conclusion:* After an intensive study of the records of these 821 cases, two facts, in our opinion, stand out most clearly.

1. That German measles and measles are two distinct and separate diseases; the one mild and the other severe.

2. That true measles may prove a serious disease, and that the attitude of the laity, and also of many in the profession, in considering measles as innocuous as chicken pox, and in favouring its spread in a family, on the occurrence of infection in one member of it, is one which must be strongly condemned.

## TECHNIQUE OF CATARACT OPERATIONS

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*Toronto*

ANYONE visiting the various eye clinics of Europe and America must have been struck by the differences in technique displayed.

In England, Morton taught us to stand behind our patient and to use the left hand for the left eye. In Vienna we saw Muller stand always in front of his patient and use the left hand for the right eye. While most of us use the operating table, and in Vienna the patient is semi-reclining, I have seen a missionary in China operate with the patient seated in a chair, holding the eyelid with a small retractor and doing simple extractions with the other hand unaided.

There is nothing original in any of the details I have to present, yet like the clubs in a golf bag, they are not quite the same collection as any others. I merely give the methods which in recent years have in my hands proved safest and most satisfactory.

Dilating the pupil before operating is practiced by many, extracting before iridectomy, has had advocates for years. Capsule forceps are used everywhere, and basal iridectomy was the routine practice throughout most of Europe before the war. It is the incorporating of all four of these details into the operation, which I advocate.

In addition to the usual attention to the urine and chest, I have reason to recall the advice given by Lang so long ago as 1903 to eliminate septic teeth.

We owe it to our patients to have, if possible, a trained assistant.

In cleansing the field, the eyelid margins are carefully wiped with alcohol. If a Lang speculum is used, only the outer eyelashes need be trimmed. I have seen an eyelash carried into the globe where this was neglected. Bushy eyebrows should be trimmed or shaven, the repositor should not brush through hair in transit.

A layer of wet gauze over the face helps to keep the hands clean. Instead of a speculum Hess' retractors in the hands of a good assistant prevent a restless patient from squeezing, and give an aseptic field.

One or two hours before the operation Atropin is instilled once, and I am not yet sure but that it would be better to use it earlier and oftener, as sometimes the pupil is still rigid. Adrenalin is instilled once or twice while cocainizing. The cocaine, 3 per cent., perfectly fresh and sterile, is instilled every three minutes for five times, beginning fifteen minutes before the patient goes to the operating room.

The other eye should get a few drops also; the advantages are obvious.

While good daylight may suffice, facilities for darkening the room and for focal illumination are essential.

Fixation forceps should have two or three fine and very sharp teeth to grip the sclera preferably just below the counter puncture.

I usually cut a liberal conjunctival flap, it gives a fine sense of security, but it does obscure the view in doing a basal iridectomy, so that I am

always consoled if I do not get a flap. The incision should be large, nearly half the circumference.

Now as to the four main points on which I base this paper:

1.—Dilating the pupil beforehand: To this I can find no serious objection. Prolapse of a well dilated iris is actually less likely to occur. It is certainly easier to get across, and I feel sure that there is less chance of slicing the iris in cutting out, older teaching to the contrary.

In using the capsule forceps the advantages of a large pupil are many. You can get a much larger piece of capsule and at little or no risk of picking up the iris margin with the unfortunate results that follow.

It is easier to extract your lens, especially a large or sticky one, and it is easier to wash out debris. The pupil is usually still dilated next day, and is easily kept so.

2.—The advantages of capsule forceps in giving a thinner membrane must be obvious to anyone who has used them. Needling is rarely required. The teeth must be sharp and the forceps not too large. Many models are more suitable for veterinary practice. I use Cowper's, with a row of teeth 4 mm. long, and remove as much capsule as possible.

The danger of dislocating the lens is over-estimated. This, and the danger of picking up the margin of the pupil, is slight with sharp forceps a dilated pupil and good illumination. If a capsule is very tough you may be able to lift out the entire lens in its capsule, giving a happy result as to vision. The next point:

3.—Extracting before iridectomy is sound practice even if an ordinary iridectomy is contemplated; and, of course, to do a basal iridectomy before extracting is to invite difficulty in extracting the lens.

(a) In either case after extraction the sphincter sweeps back any tags of capsule from the wound.

(b) There is no hæmorrhage before extraction.

(c) The most painful part, the iridectomy, is postponed until after your lens is out. I admit that some pupils do not dilate and others do not remain dilated, and then iridectomy may have to be done first. Likewise if the suspensory ligament is weak and a scoop is necessary.

Basal iridectomy has four advantages:

(a) A round pupil with its normal appearance, absence of glare and better acuity.

(b) Not only is there no risk of prolapse if the hole is made large enough, but there is rarely any adhesion of iris to the wound, rarer than with ordinary iridectomy. My experience as a house surgeon taught me that after ordinary iridectomy in a large percentage of cases one or both pillars were adherent to the wound and in many capsule also, and that in the former some iritis was to be expected.

If even ordinary iridectomy is done after, not, before extraction, capsule in the wound is rare and if a basal iridectomy is done it is impossible. As this is perhaps the commonest cause of serious and persisting iritis and its sad results in updrawn and closed pupils, post-operative tension and even sympathetic ophthalmitis, its prevention is of first importance. Incidentally, a quicker convalescence and shorter time in hospital is a pleasing result.

In the after treatment I always tie up both eyes and shield both from the light for three or four days.

The movement of one eye means movement of both. The darkness of Ring's mask favours dilatation, meaning less atropin and fewer dressings with their attendant risks.

I rarely touch them more than once daily. There is no objection to the aged sitting up even next day.

Dark smoke goggles are worn so soon as one eye is uncovered, with, if necessary, a pad over the eye operated upon.



## OBSERVATIONS ON THE ÆTIOLOGY OF INFANTILE ECZEMA\*

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THE earlier teaching concerning infantile eczema was confined to the skin alone and was naturally allocated to the province of the dermatologist, and emphasis of treatment was laid on external applications to the skin. In some instances such treatment was quite satisfactory, but there remained a large number of unsatisfactory cases which were unimproved by local treatment. With the development of Pædiatrics as a recognized specialty in medicine and with a consequent closer study of digestion in infancy it was noted that food seemed to have some relationship to the development of infantile eczema, and it is from this viewpoint that these observations were made.

The name eczema is derived from the Greek, and means "to boil out"; and in the past many diseases of the skin were called eczema: in these, as knowledge increased, further classifications were made. Is it not possible that many diseases still remain classified as eczema which increasing knowledge may reclaim and more scientifically designate?

The regional sensitivity of the skin in infants cannot be overlooked, and it is interesting to note that the thorax, feet and palms are seldom involved in infantile eczema. Sauer applied solutions of phenol in benzol to the cheeks, thorax, buttocks and soles of healthy infants, and he noted that the reactions were more marked in the cheeks and buttocks.

The cases that have come under my observation have occurred in infants all under two years of age, some in breast-fed babies and others amongst those artificially fed.

### *Eczema in Breast-fed Infants.*

As a rule, eczema occurring in breast-fed infants manifests itself in well-nourished babies, but this is not always so. As an example of this type I present the following from amongst several of which I have records.

\*Read before a meeting of the Montreal Medical Chirurgical Society, October 21, 1921.

**Baby G. Complaint:** Eczematous rash on face. **Family History;** Grandmother has asthma. Investigation of the mother's diet revealed that she was eating 3 or 4 eggs a day. Family history otherwise negative. **Personal history:** a full-term child weighing 8 pounds at birth; no instruments used; eczema has been present since two weeks of age.

**Physical examination** showed a fairly well developed baby aged 4 months, weight 11 pounds, with a well-marked eczematous rash on face and neck; examination otherwise negative.

**Skin tests.** Mother gave a negative reaction to both yolk and white of egg, while baby's reaction was positive to both yolk and white of egg.

**Treatment:** Recommended that mother should exclude eggs from her diet. One month later a letter was received saying that the baby was completely cured, since then no further communication has been received.

The inference in this type of case is that eczema is caused by an anaphylactic reaction from the egg through the milk of the mother. W. Roy Shannon (1) has demonstrated the effect of food proteins in human breast milk by anaphylactic experiments on guinea pigs.

His conclusions are:

"1. It has been demonstrated that egg protein may be present in the breast milk of some nursing mothers after the ingestion of moderate quantity of egg albumin.

"2. It has been demonstrated as conclusively as possible under the conditions of the experiment that it may cause disturbance in the nursing infant under these conditions.

"3. It is deemed probable that this may occur with other foods that the mother may eat.

"4. It is contended that we must revise our ideas as regards the diet of the nursing mother and must study cases of food disturbances in the nursing infant from the standpoint of what the mother is eating."

Two other cases of eczema in breast-fed chil-



dren came under my observation with like results although one subsequently died from pyelitis. Egg albumin is the most common offender, but other foodstuffs may act in a similar way.

*Eczema in Artificially Fed Babies.*

The aetiology appears to be frequently of a similar nature in artificially fed infants, save that the offending protein instead of being indirectly transmitted is directly offered by means of the bottle.

The following two histories are presented as examples of this sub-group:

1.—A. K. Personal History: a full-term infant, normal delivery at birth, weighing  $7\frac{1}{2}$  pounds. Breast fed for 2 months; then gradually weaned. From age of 3 months has had a very delicate skin and has had small spots on forehead. At present the formula of food which the infant is taking is: whole milk 30 ounces, barley gruel 10 ounces, canesugar one tablespoonful.

The infant is now 11 months of age, and weighs 21 pounds, has 4 teeth and is well except for eczema, which has been very bad on the face for the last 4 days.

*Family History:* Father had asthma as a child; paternal grandfather has had eczema all his life, and one aunt had eczema in infancy. No history of gout. In the mother's family no history of either eczema or asthma.

*Physical examination* showed an apparently well-developed normal body for her age with the exception of the eczema on cheeks.

*Skin tests* gave positive reaction to barley and to oatmeal.

*Treatment:* These foods were withdrawn from diet and the eczematous condition disappeared excepting when these foods were again consumed. The baby is at present 18 months old, and last week, two days after it had been fed on oatmeal porridge, had a very definite attack of urticaria.

Several other cases of this type have been observed, some of which gave positive reactions to barley, cow's milk, wheat, etc. A number of other artificially fed babies showed no reaction to any of the foods in their dietary, and these cases as a routine were put on fat-free milk; in those in which the eczema improved cream was gradually added. Those cases that showed no improvement on the withdrawal of the cream were rapidly returned to whole milk. In only one of these cases was an analysis made of the total fat in the stools. In this case in addition to the unusual findings

in the amount of fat of the stools a questionable reaction for barley was obtained. The subsequent history showed that the child had a definite idiosyncrasy to barley.

It is hoped to carry on further investigation along these lines during the coming winter, as it would be improper to draw any conclusions from the laboratory results of one case. Therapeutically 5 cases were observed, four of whom did well and one showed no improvement. It is quite possible that the withdrawal of the fat, by diminishing the total quantity of food, caused the eczema to improve, and that the only influence of the fat on the metabolism was on account of its high caloric value.

2.—H. R. V. Personal History: Born at full term, and at birth weighed 9 pounds. Breast fed entirely for 3 months, then started on one bottle of Allenbury's. At age of 4 months while still being fed on breast and Allenbury's and in month of December, mother noticed that cheeks looked "chapped," and she thought this due to cold weather. Seen by a dermatologist, who diagnosed this condition as one of eczema, treated it by external applications and stopped the use of Allenbury's food. After this the infant was entirely breast fed for a month, and the mother thought it improved, although the eczema did not disappear. It became necessary to wean him at 6 months of age; during the next 2 months the eczema became more aggravated and at the end of 8 months when first observed by me he was on the following formula: whole milk 36 ounces, barley gruel 12 ounces, cane sugar 4 tablespoonfuls; some cream of wheat was also given him. The Family History. Negative.

*Physical examination* showed a well-developed baby weighing 21 pounds  $2\frac{1}{2}$  ounces, with a dry type of eczema of the head, face, neck, chest and abdomen. Otherwise the physical examination was negative.

*The skin tests* revealed a negative reaction to whole milk; the reaction to barley was questionable. The examination of the stools for quantitative fat by Dr. E. H. Mason was as follows: first specimen, 7.2 per cent. fat; 2nd specimen, 10 per cent. fat. An examination of blood fat was not made.

It was thought that perhaps too much fat was being absorbed, as the normal stool of an artificially fed baby usually has between 30 and 40 per cent. fat (Holt) (2). Consequently the child was put on a diet of skimmed milk (siphoned) and cream of wheat. Three days later the eczema had

almost entirely disappeared (31-5-21). About six weeks later child had an attack of diarrhoea and was put on the following formula: skimmed milk, 33 ounces, double strength barley gruel 9 ounces. Within two days the eczema reappeared and so we returned to skimmed milk. The eczema improved again and fat was gradually added to the milk without bad effect. The child is now two years old and eats the usual food taken by a child of that age, and is well and healthy and free from eczema.

In conclusion one seems justified in assuming that there is some relationship between the food and the eczema in certain cases of infantile eczema, and it would seem worth while to investigate all cases of infantile eczema along these lines.

It is not advocated that the treatment of the skin by local applications should be neglected but rather that the disease should be treated both by local applications and a regulation of the diet. That there will still remain a group of these cases which will resist treatment is granted, but some advance has been accomplished if another subdivision has been made in the baffling problem of eczema.

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**Ethyl Chlorid in General Anaesthesia**—Observations made by Arthur E. Guedel, Indianapolis (*Jour. A. M. A.*, Aug. 6, 1921) with the use of ethyl chlorid in general anaesthesia in about 2,000 cases are recorded. These were mostly for operations of from one to five minutes' duration. About 200, however, were for operations lasting from fifteen minutes to one hour each. Nineteen cases carefully studied were of an average length of fifty-three minutes. Ethyl chlorid in overdose produces one of two sets of symptoms. He has designated these as the spasm type and the respiratory depression type. Approximately nine out of ten of all patients overdosed with ethyl chlorid manifest the spasm type. The first indication of approaching spasm is a sardonic grin, due to contraction of the muscles about the mouth; next a beginning contraction of the masseter muscles, and a beginning crowing of inspiration. This crowing, due to partially obstructed inspiration, is the real warning that the dose must be reduced. If the overdose of the drug be continued, the spasm progresses rapidly until, in about one or one and a half minutes more, it will have become a complete respiratory obstruction, and a state of peripheral asphyxia is present. The spasm, once inaugurated, develops so rapidly that cyanosis does not appear in the usual case until the obstruction is almost

total. The mouth must be opened, the tongue pulled far out and vigorous chest compression made. The depression type is a progressive central respiratory depression, and occurs in approximately one out of ten overdosed patients. From the onset, the respiratory effort grows less both in volume and in rate. The volume depression is greater than that of the rate. With the continuance of the drug in overdose, this depression progresses to a complete respiratory paralysis in from one-half minute to two minutes, depending on the patient and the vapor tension of the drug. The patient is perfectly relaxed in every way. The picture during the deeper degrees of depression is one of collapse. The picture resembles that of cardiac syncope. But the pulse belies the picture. To the observant anaesthetist there is ample warning of the approach of this depression; and there is no need that it be carried to the degree of total paralysis of the centre. However, should total paralysis occur, resuscitation is simple. There is no respiratory obstruction, and two or three forceful, manual compressions of the thorax serve to eliminate the excess of the drug from about the respiratory centre, and automatic respiration is re-established, to carry itself to the anaesthetic normal in from one to four minutes.



## SOME NEW ANÆSTHETIC ETHERS\*

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**D**URING the past three years two modifications of Anæsthetic Ether, as it was known previously, have been introduced. One by Cotton (1) of Toronto, which goes by the name of "Cotton Process Ether"; the other by Wallis and Hewer (2) of St. Bartholomew's Hospital, London. These new Ethers have come into existence as a result of attempts on the part of their authors to eliminate totally, or at least in part, the discomfort of induction, the disagreeable after effects, and the danger of administration of ether.

Ethyl ether, as prepared for anæsthetic purposes, contains small quantities of impurities, the chief of which are alcohol, water, acetone, mercaptans and thio-ethers. Those formed by oxidation on standing comprise aldehydes, peroxides and acids.

Some years ago Dr. Cotton was led to attempt the removal of all these impurities and finally succeeded in obtaining an absolutely pure ether. He now found to his surprise that this pure ether failed to anæsthetize, even when given in very large doses and for a considerable time. He therefore tried adding certain of the ingredients previously removed and finally evolved the mixture now known as "Cotton Process Ether," which consists, according to the manufacturers, of "highly refined diethyl oxide plus approximately two volumes of ethylene,  $\frac{1}{2}$  volume of carbon dioxide and one per cent. by weight of ethyl alcohol."

The claim is made that less of this ether is required, that post-operative vomiting is markedly reduced, that the induction time is shortened, and that an analgesia can be produced which permits of major operative procedures being conducted with a very light degree of anæsthesia, sometimes with the patient only in the "first" stage *e.g.* The following is one case of those reported by Dr. Cotton:

"Case 3. Open mask administration direct from container. Male, age, 18; weight 180 pounds. Operation: adhesions and resection of

tubercular mass from abdomen. Time of operation, 1 hour and 10 minutes. Patient remained very clear mentally and cracked jokes throughout. He was given a small meal while the surgeons were operating on him. Abdomen was completely relaxed. Eyes were slightly dilated and pulse remained at 80. Amount of ether used, 3 ounces."

The "Cotton Process Ether" used at the Winnipeg General Hospital was manufactured by the Dupont Powder Co., and was supplied in  $\frac{1}{4}$  pound tins. When poured into a bottle bubbles of CO<sub>2</sub> gas can be seen rising, very much as from a good brand of champagne. The administrations were mostly by the so-called open method, a mask covered by 15 to 20 layers of gauze (depending on the weight of the gauze). By this method I found, to my great disappointment, that the induction period was, on the average, longer than with other ethers. Often 16 to 18 minutes after commencing induction the patient only reached the second stage of anæsthesia. The excitement period was considerably prolonged.

Given in this manner it is reasonable to suppose that most of the CO<sub>2</sub> escapes and that very little is inspired by the patient. Therefore some administrations were made by the closed method, in which, as with other ethers, a far smaller quantity sufficed. It was also used in a Stock's inhaler, where the anæsthetic is vaporized by the passage of air through the liquid, and also administered with oxygen and nitrous oxide and oxygen.

In a very few cases the operation was conducted with the patient in the second stage of anæsthesia. This, however, can be accomplished in the case of other ethers about as often. Post-operative vomiting, and also the time of regaining consciousness, was about the same as with the ordinary anæsthetic ethers.

*Ethanesal* is the name given to the new ether produced by Wallis and Hewer. Wallis had unusual opportunities some years ago when in India—where the climate causes rapid deterioration of ether—of testing many samples, and devising means of purifying them. The mercaptans were found to be the chief impurity, and were found to

\*Read at the annual meeting of the Manitoba Medical Association, Winnipeg, November 10th, 1921.



cause salivation, lacrymation and severe headache. He carried on his experiments until he obtained a pure ether, which he found, as had Cotton, only produced a state of excitement on inhalation, with no true anaesthesia.

He then tried the addition of ethylene as in Cotton's ether but found it unsatisfactory, and finally added the ketones to the extent of 2 per cent., stronger solutions being found inadvisable.

The advantages claimed for ethanesal are:

1. It is less toxic than chloroform or ether, and the safety margin is greater than with ether.
2. It is less irritating to the respiratory passages than ether.
3. Post-anaesthetic vomiting is less than with chloroform or ether.
4. The taste and smell noticed afterwards by the patient are much less than with ether, and are generally absent.
5. The pulse-pressure is higher than with either ether or chloroform.

Ethanesal has now been used as the anaesthetic in a number of operations at the Winnipeg General Hospital. The odour is less pungent and more fruity than that of ether, and therefore not so irritating to the mucous membrane of the respiratory passages. The breathing is quieter, a light stertor usually being present, much less obvious than that of ether. The after-taste is less persistent and less unpleasant, and salivation is also less than after ether.

The stages of anaesthesia are the same as with ether, but a little shorter. If the operation is extra-abdominal and prolonged, the anaesthesia may—after it has proceeded for some time—be allowed to become very light, the patient, though in some cases blinking his eyes, will remain motionless and apparently without pain.

The pulse rate is less than with ether, in the majority of cases between 80 and 100. The blood pressure is not lowered to the same extent as with ether.

Muscular relaxation is greater, the abdominal muscles in laparotomies relaxing to a degree approximating that produced by chloroform rather than that of ether. The quieter respiration

causes less abdominal movement. I have succeeded in obtaining a satisfactory relaxation of these muscles for a surgeon in whose cases I invariably am obliged to have recourse to a certain amount of chloroform, when anaesthetizing with ether for intra-abdominal operations, in order to produce the desired relaxation.

One requires a little practice to get used to this anaesthetic; the tendency being to keep the patient more deeply under it than is necessary. The corneal reflex may be allowed to be fairly brisk in many cases, while the abdominal muscles are still quite relaxed. If not kept under too deeply patients wake up more rapidly than after ether.

The quantity of anaesthetic required is about two-thirds that of ether. Vomiting is generally less than after ether unless the anaesthetic has been pushed to an unnecessary degree. This, in part, may be owing to the rather pleasant odour, the less disagreeable taste left in the mouth after its use, and the lessened salivation.

The age of the patients has varied from 3 months to 70 years. The duration of anaesthesia from 10 minutes to 105 minutes.

The research performed by these workers appears to be of the utmost importance. One cannot expect efforts towards removing the disagreeable and dangerous ingredients contained in anaesthetic liquids to be final as yet. Instead, I think we may look forward, in the confident belief, that we are only at the beginning of an era of chemical research into all anaesthetic substances. The good already accomplished will certainly stimulate those who have so assiduously laboured to lessen the discomfort and dangers, and thereby the fear of anaesthesia; and will doubtless cause others, who have the necessary chemical knowledge, to persevere in the effort to ultimately provide the perfect anaesthetic.

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## THE SODIUM CITRATE TECHNIQUE FOR BLOOD TRANSFUSION

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*Montreal*

**B**LOOD transfusion is so common a hospital procedure that its use in private practice urban or rural, should be extended. Simplicity, and safety of technique is easily acquired, the cost of the necessary apparatus is low, and the outfit obtainable anywhere in Canada.

Chemically pure sodium citrate is readily obtained. We have used Merck's and have taken pains to have it kept covered in its original tin with a glazed paper lining. In the operating room of the Montreal General Hospital we keep on hand corked, small, brown, wide-mouthed glass bottles, each with 18 grains of sodium citrate. The contents of two bottles, 36 grains, are added to 120 c.c. of sterile distilled water at the boiling point and boiled slowly for three minutes,—(B). This makes practically a 2.0 per cent. solution. Several ounces of sterile normal saline solution are also needed,—(A). It is desirable to make the solution of sodium citrate fresh for each transfusion rather than keep it any length of time. In country or small town practice where autoclaved solutions are not readily obtainable, the sodium citrate solution may be obtained from Parke Davis and Company in sealed glass ampules of 50 c.c. each, of a 2.5 per cent. solution, sufficient for 450 c.c. of blood. This firm puts up tablets composed of sodium chloride g.m. 2.250, or  $34\frac{3}{4}$  grains, calcium chloride gm. 0.065 or 1 grain, potassium chloride

gm. 0.025 or  $\frac{3}{8}$  grains. Four such tablets are added to 1,000 c.c. of freshly distilled water and filtered through four sheets of white filter paper. This should be well boiled if it cannot be autoclaved, and care taken to see that the original quantity, 1,000 c.c., is not greatly reduced, thereby resulting in a hypertonic salt solution which produces hæmolysis.

Illustration No. 1 shows that the requirements comprise:

*The glassware—*

- (1) one 500 c.c. conical graduate
- (2) one 250 c.c. " "
- (3) one 100 c.c. " "
- (4) one 300 c.c. infusion container, complete with rubber tubing, glass telltale and record needle connector.
- (5) two pieces of solid glass rod, each about 12 inches.

*Needles—*

- (6) two fine cambric straight needles, size 11 or 12.
- (7) three large size hollow needles, calibre 12 or 10, bevelled at the end, or any large size Salvarsan needles, for collecting the blood. Satisfactory needles may be obtained by cutting down the large size needles in any aspirating set.
- (8) two pieces of rubber tubing, calibre about  $\frac{3}{8}$  to  $\frac{5}{8}$  inches, for esmarchs for the arms of the donor and the patient, about 20 inches long.
- (9) three pieces of rather firm walled rubber tubing, inside calibre  $\frac{3}{8}$  inch, each 8 inches long.
- (10) four curved, Mayo, hæmostatic clamps.
- (11) four or more towel clamps.
- (12) assorted sizes record needles for entering the patient's vein.

I have the end of the infusion tubing terminal to the telltale fitted to a metal tip which readily slips into the record needles used for the patient.

All the apparatus and a hypodermic syringe is sterilized by boiling 15 minutes, or in an autoclave, except the needles which are placed in an

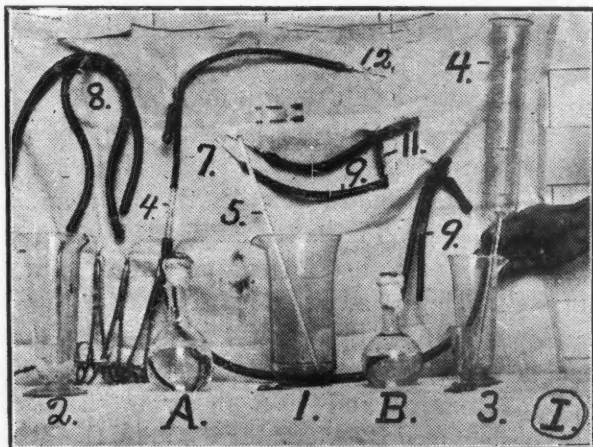


FIG. 1.—Transfusion Set. description by numbered articles in text.



alcoholic lysol solution, 1 in 12, for 20 minutes. Some 2 per cent. novocaine solution is also needed, and a quantity of sterile water to flush out the needles and tubing prior to beginning the operation.

The operator and assistant, or nurse, should wash up as for a major operation. The arm of the donor and of the patient is prepared by washing with ether, alcohol and alcoholic bichloride 1 in 500, or iodine if the veins are large and easily seen. They are suitably draped with sterile towels held by clips.

Two needles are selected, suitable for the vein of the donor, which is preferably the largest at either elbow, and two pieces of rubber tubing slipped over their ends. After flushing with sterile water or saline they are filled with a little of the citrate solution by making a U of needle and tubing, and when full a clamp is affixed to the end of the tube. This keeps the needle and tube filled, and when the blood flows through, it comes in contact with a citrated surface. 30 c.c. of the 2.0 per cent. citrate solution (or 25 c.c. of the 2.5 per cent. solution) are measured out into the 500 c.c. glass graduate, and another 30 c.c. is left ready in the 100 c.c. graduate. The former is placed on a stool adjacent to the donor's elbow so that when the needle is introduced into the vein the blood will flow directly into the citrate solution and not on to the side of the graduate. The esmarch

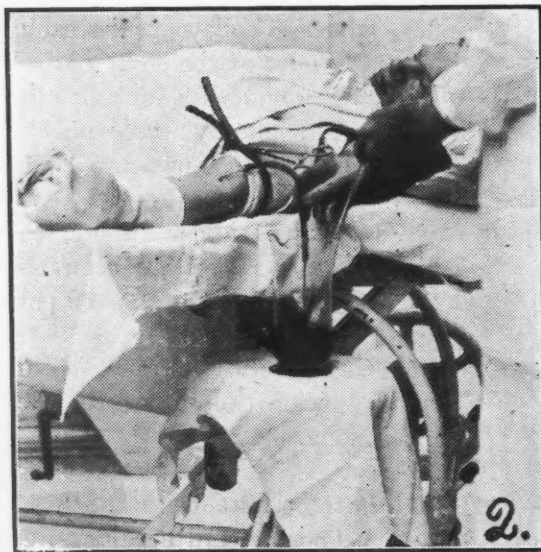


FIG. 2.—Collecting the blood, note blood flowing from end of tubing.

encircles the upper arm not too tightly, its ends are held by a clamp. Over the course of the vein selected two drops of a 2 per cent. solution of novocaine are injected by a hypodermic at a level half an inch proximal to the point of intended entrance

into the vein of the collecting needle. The latter is then inserted through the area of anæsthetized skin, pointing towards the hand, and the clamp removed from the tubing. The assistant holds this directly over the citrate in the graduate and the operator pushes on the needle into the vein, when the blood displaces the citrate and runs in a steady stream into the container. (Illustration No. 2). Steady contraction of the donor's fist maintains this. When 250 c.c. of the mixture is in the graduate another 30 c.c. of the citrate solution (or 25 c.c. of the stronger solution) is added, and the flow continued until the 500 c.c. mark is reached. (Illustration No. 3). If more



FIG. 3.—500 c.c. blood collected, tube pinched shut by operator.

is required, 30 c.c. of the citrate is added to the 250 c.c. graduate and it is filled to this level. During the flow the mixture is gently stirred with a glass rod. The clamp is removed from the esmarch, the needle withdrawn and collodion or a gauze pad and a bandage applied. The procedure is then reversed. (Illustration No. 4). An esmarch is applied to the patient's arm, the skin anæsthetized, and a suitable record needle selected. It is introduced towards the body and as soon as the blood flows the connecting end of the infusion set is pushed into it and the esmarch removed. The infusion graduate with the tubing previously has had put into it about 25 c.c. or 50 c.c. of saline, all air replaced and clamped. The clamp is removed and it is made certain the flow is established into the vein before adding the blood mixture to the container. The latter is run in slowly, taking at least 10 minutes for 500 c.c.



Too rapid flow will produce cramps in the legs and back and often symptoms of right-sided cardiac engorgement. When it is difficult to locate an obvious vein in the patient's arm, a non-visible but palpable one, after the esmarch is ap-

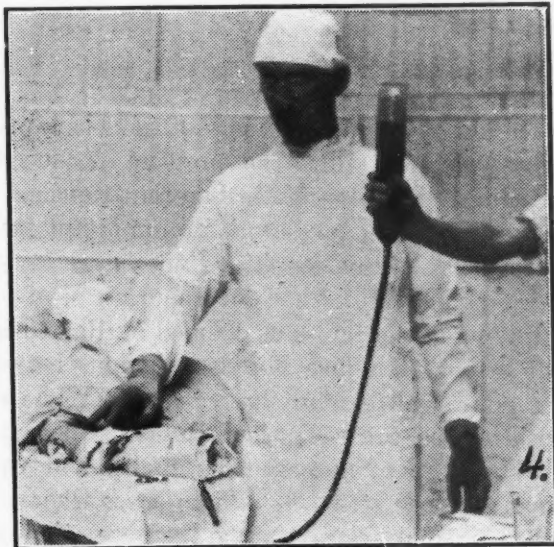
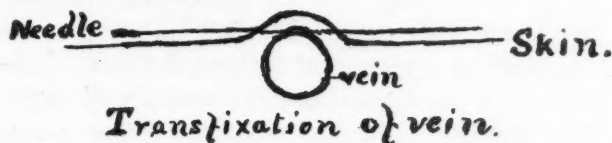


FIG. 4.—Infusion into Patient.

plied, may be secured by Watson's method of transfixing the vein at right angles with a fine cambric needle distal to the proposed point of entrance. This fixes it so that it cannot roll away from the needle.



To flush in the last of the blood mixture, saline is added to the container as it is emptied of blood.

This method is practically identical with that described by Richard Lewisohn (1) and used at the Mayo Clinic and elsewhere. Our modifications are the use of larger needles for the donor's vein and the filling of the needle and tube with citrate solution to lessen the chance of preliminary clotting.

The main difficulties met with are those due to failure to secure an uniform flow from the donor. This is usually due to a too tight esmarch or to failure to enter the vein completely. Occasionally the needle lies against a valve and movement in or out a little, or rotation, re-establishes the flow. In the case of a patient with small veins, fat arms, or marked anaemia, or with some females, it may be necessary to dissect out a vein. I never undertake a transfusion in hospital, or in a private house, without the necessary instruments for such

dissection. Only once have I found it necessary to dissect out the vein of the donor, in the case of a very fat man with small veins. In many cases I have found more suitable veins in the lower extremity; the internal saphenous vein, or even varicose veins may be used. In about one dozen transfusions I have used the external jugular vein. In infants the superior longitudinal sinus may be entered, as described by Tarr (3) and others.

The technique of the necessary blood grouping may be easily acquired, and when laboratory facilities are not available, the operator may secure from Parke Davis and Company (Bio. 131) ampules of number two and three group sera, with which a macro- and microscopic test may be carried out. No transfusion, save in the most urgent emergency, should ever be executed without securing a donor either from the same blood group or a universal donor, one from group No. 4.

The grouping is described in many articles in the literature. (2) (5). The indications for transfusion, the reactions and results are reported elsewhere by the author (4).

By this method the author has carried out transfusions in hospital or in private homes with equal safety and satisfactory results. The method is now used by other members of the staff of the Montreal General Hospital and has entirely superseded the Kimpton-Brown-Vincent paraffined tubes and the Robertson-citrate bottle apparatus. One of its greatest advantages is that donor and patient do not have to be together and the blood mixture may be transferred to the patient's bedside and even kept several hours. It is not usually necessary to warm the blood mixture, but if left standing any length of time it is advisable to stand it in warm water. Cold intravenous solutions are not well tolerated, and in cases of marked shock or severe haemorrhage care should be exercised to see that the inflow is at, or slightly above, normal body temperature.

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## HOUR GLASS STOMACH\*

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THE term "hour glass stomach" has been applied to that condition in which the cavity of the stomach is divided into two or more parts, and refers to the shape of the stomach, rather than to the pathological condition on which the deformity depends. It is really an end result and not a diseased condition in itself.

The condition was first accurately described by the Italian anatomist Morgagni, about the middle of the eighteenth century. He considered the condition secondary to ulcer. He found ulceration present in his cases and considered the deformity to be due to cicatricial contraction of the stomach wall. Monroe, in 1813, reported a series of cases collected from the statistics of various observers.

In 1851, Struther advanced the view that there were two forms of hour glass stomach, the one congenital, and the other acquired, the latter being due to cicatricial contraction following ulcer. Hirsch, a few years later, made a careful study of all the cases reported and came to the conclusion that all cases were congenital, and were due to a congenital deformity. In the cases in which ulcer was found, he considered that the ulceration was secondary, and due to erosion of the stomach wall by the decomposing stomach elements. This view was supported by the fact that in some cases obstructive symptoms dated back to early childhood, while the symptoms of ulcer were of later occurrence. For some years, this theory was looked on as the correct one, but more recently the tendency has been to discard the congenital theory, and to look upon ulceration as the chief cause of the deformity. (1) Moynihan was one of the first to support the ulcer theory, and pointed out the fact that if the condition were a congenital one, it should be found more frequently in the dissection of newly-born children. (2) Rovsing calls attention to the fact that hour glass stomach occurs much more frequently in women than in men, while ulceration is as frequent in men as in women. Rasmussen probably had this in mind,

when he advanced the theory of tight lacing as a cause, claiming that the pressure produced a cicatricial shrinkage of the serosa. Rovsing believes that corset pressure is an important factor in the cause of this condition, but claims that the effect of pressure is not to produce a cicatricial shrinking of the serosa as claimed by Rasmussen, but rather to induce fibrous adhesions between the peritoneal folds in the stomach. While this furnishes us with a rather fantastic theory, it does not seem to me reasonable, that in a movable organ like the stomach, and in cases where the corset is only worn during the day, that the folds of the stomach would be in contact sufficiently long to permit fibrous adhesions to form. The natural peristaltic movements of the stomach would also tend to prevent the formation of such adhesions, and further the appearance of the stomach itself, when the abdomen is opened, so far as I know, will not support such a view. While the various theories, stated above, are interesting as a matter of history, I think all observers at the present day are pretty well agreed that ulceration is by far the most common etiological factor. (3) Dr. Eusterman in a paper read before the Minnesota Pathological Society in 1913 stated that up to that time in the Mayo Clinic, over 85 per cent. of hour glass stomach cases were shown to be due to chronic gastric ulcer.

It is quite possible that in those cases formerly looked upon as congenital, a more careful examination would have revealed the presence of present or past ulceration. The fact that ulceration has been demonstrated to be present even in prenatal cases strongly supports this view.

Other etiological factors are:

1. Syphilis of the stomach.
2. Tuberculosis.
3. Swallowing corrosives, either alkaline or acid.
4. Pressure from extra gastric benign growths.
5. Malignant disease.
6. Perigastric adhesions.
7. Constricting bands.

\*Read before the Ontario Medical Association, Niagara Falls, May-June, 1921.



8. Spasmodic contraction, which may be secondary to intrinsic gastric lesions, or to pathological conditions in remote organs, more especially the appendix, duodenum and gall bladder.

Syphilis of the stomach is undoubtedly a more common cause of stomach trouble than we used to think. While I cannot speak of this condition from my own experience, a review of the literature would lead one to believe that it is not an infrequent cause of hour glass deformity, and no discussion of this subject would be complete without reference to it. Syphilitic hour glass stomach may result either from luetic ulceration or from the formation of gummæ. The former will resemble simple ulceration, while the latter will resemble, and might easily be mistaken for, carcinoma. (4) Dewis has called attention to certain features of the x-ray appearance of syphilitic hour glass, which he thinks serves to differentiate it from the hour glass of simple ulcer or carcinoma. He says: "In syphilitic hour glass of the stomach we see a long regular isthmus, at each end of which the walls of the stomach rise more or less abruptly or dumb-bell like. This is in sharp contrast to the sharp incisura of simple ulcer hour glass, with practically no isthmus, and the picture differs quite as much from the cancer hour glass with the infiltrated walls of the stomach sloping irregularly away from the constricted portion." Other observers, notably LeWald and Carmen, have called attention to this characteristic pointed out by Dewis.

Several other points may serve to distinguish syphilitic hour glass from that due to carcinoma, viz., in the first place the syphilitic condition is likely to occur at an earlier age—there may be a history of infection—and the general condition of the patient is likely to be much better in the syphilitic condition than in a case with the same degree of deformity, due to cancer. In any case, however, before a positive diagnosis of syphilis is made, the history should be carefully gone over, a thorough clinical examination made and the results co-related with the laboratory and x-ray findings. The effect of anti-luetic treatment will also be of value.

Tuberculous ulceration is, no doubt, responsible for a small percentage of hour glass stomach, and while it may be difficult to be positively certain of the diagnosis without the microscopical examination of the diseased tissue, I think the history taken in conjunction with careful clinical examination, and x-ray, not only of the stomach but of

the lungs, will often make the diagnosis reasonably sure, as the following case will serve to illustrate:

Mrs. K, aged 55 years, widow, with well-marked family history of tuberculosis, had suffered more or less from cough for over twenty years. Examination of the chest showed definite involvement of the upper lobes of both lungs, with the tubercle bacillus present in the sputum. For fifteen years she had suffered from stomach trouble, which was very suggestive of ulceration. During the three years that she was under my care, I noticed that while the gastric symptoms would improve for a period of several months at a time, they would never entirely disappear, and practically every time she contracted a fresh cold and had a flare-up of the lung condition, it would be followed by an aggravation of her stomach symptoms and on at least three occasions, she vomited quite large quantities of blood. X-ray examination of her stomach on two occasions revealed a well-marked hour-glass deformity, about the junction of the mid and upper third. I always felt this case could be classed as one of tuberculous ulceration.

The hour-glass of malignant disease is not usually hard to detect. By the time this deformity occurs, a tumour can usually be felt, the patient will be of the cancer age, and there will generally be well marked clinical evidence of malignant disease, such as loss of weight and strength, anæmia of a secondary type, blood in the stool and more or less general cachexia. Examination of stomach contents will show a diminution or absence of free acid more frequently than in hour glass of other types. X-ray examination of these cases is usually fairly suggestive. The constricted portion is usually longer than that of simple ulcer, and is frequently more or less irregular in outline. In other words, it is more of a filling defect than a constriction of the stomach wall.

Benign tumours may produce similar deformity of the stomach, but they are comparatively rare, and the indentation produced by them tends to be more regular in outline than is the case with malignant conditions. The following case illustrates this type:

Mrs. T., aged 35 years, married, previous history negative until three months previous to consulting me. Since that time she had suffered more or less continuously from nausea and vomiting. Interrogation elicited the fact that she had not menstruated for three months, and on examination, I found that she was about three months



pregnant. On further examination, I discovered a tumour in the epigastrium, about the size of a large orange. It was regular in outline, fixed, and only slightly sensitive to pressure. X-ray examination showed a well-marked hour-glass deformity, which was clearly due to the presence of the tumour. The stomach was fixed in the region of the tumour, and the deformity could not be materially changed by pressure on the abdomen under the screen.

On opening the abdomen, I found the stomach itself apparently normal, but attached about the centre of the greater curvature and by its posterior surface to the tumour, which was situated above the pancreas and behind the peritoneum. I opened into the lesser peritoneal sac, by going through the gastro-colic omentum about an inch from the greater curvature of the stomach. I then opened through the posterior layer of peritoneum and came down on a definitely encapsulated tumour, which was enucleated without difficulty. Unfortunately I did not have a pathological examination of the specimen made, but on section it resembled very closely a uterine fibroid. At all events, it must have been a benign growth, for that is now over three years ago and the patient went on to full term, was delivered of a normal baby, and is still perfectly well.

Perigastric adhesions and constricting bands are responsible for a small percentage of hour-glass stomachs.

About five years ago, I removed the appendix from a young girl who had suffered for some months from what I considered to be a sub-acute appendix. For a time, after the operation, she seemed to improve but never got as well as I thought she ought. She still suffered a good deal from nausea and pain in the epigastrium, especially after food. Owing to the fact that she had a very nervous temperament, I attributed her symptoms largely to her nervous condition. The symptoms, however, gradually grew worse and she began to vomit. As her tonsils were not healthy, I thought they might be the cause of her trouble, and had them removed. While she was benefited in a general way by the removal of her tonsils, the gastric symptoms did not improve, but the nausea and vomiting gradually increased, until she vomited after practically every meal. I then x-rayed her stomach and found a well-marked hour-glass deformity, with a very active antiperistalsis in the upper loculus. I advised her to be examined by Dr. Neal, and he found the same condition present. We advised operation, to

which she agreed, and I operated in April, 1920. At operation, we found a dense band of omentum passing from the stomach down to the old appendix scar, to which it was firmly adherent. It was quite clear that this was responsible for the stomach deformity as everything else was quite normal. We separated the adhesion and closed the abdomen. She has been practically free from vomiting since, has gained several pounds in weight, and x-ray examination about two months ago showed her stomach to be functioning in a perfectly normal manner.

In the cases mentioned thus far, however, there is not much danger of making an error in diagnosis. It is in the cases associated with spasm or entirely due to spasm that we are much more likely to be led astray. It has been pointed out by many observers that spasm may be present, in greater or lesser degree, in almost any case of hour-glass due either to ulcer or carcinoma. It is a matter of common observation among surgeons that the indentation as seen in the x-ray plate or with the fluoroscopic screen, is very much greater than that seen on the operating table. This is due to the presence of spasm during the x-ray examination, which disappears under the influence of the anæsthetic. This, however, is not a matter of concern to either the radiologist or the surgeon, for it does not in any way affect the subsequent treatment of the case.

It is in the cases of hour-glass, due entirely to spasm, the result of extra-gastric lesions, and in which the stomach itself is healthy, that the greatest skill will be required in diagnosis. The deformity in these cases may be quite as great and resemble almost perfectly that produced by gastric ulcer, but if the condition is constantly kept in mind, and sufficient patience and care are exercised in diagnosis, it will generally be possible to differentiate the two conditions by the following means.

1.—Hour-glass due to extra-gastric lesions is not likely to be so constant and may vary during palpation of the stomach behind the fluoroscopic screen. These cases should always be screened, both in the vertical and horizontal position, for although the deformity may not entirely disappear, sufficient difference in appearance will often occur between the two positions to make the diagnosis of spasm reasonably certain.

2.—It may differ considerably when examined on different days.

3.—It may disappear when belladonna is given to the physiological effect. These three tests, I

think, will serve to eliminate the cases secondary to disease of the gall bladder or chronic appendicitis, but (5) Carman, in a paper which was published in *Surgery Gynecology and Obstetrics* in 1918, while speaking of gastric spasm associated with duodenal ulcer, says: "The spasm ranges from moderate incisura to a pronounced contraction and tends to persist after full doses of belladonna have been given, so that the observer is inclined to attribute it to a gastric lesion. The picture is further complicated by the fact that a duodenal ulcer and a gastric ulcer may occur in the same case. In every instance of suspected spastic hour-glass, it behooves the examiner to confirm or exclude the presence of duodenal ulcer. If an ulcer is present as shown by constant distortion of the duodenal bulb, the presumption is strong that it is the cause of the gastrosplasm, although careful search should be made for the niche of a gastric ulcer. If no duodenal ulcer is found and the gastrosplasm withstands all eliminative tests, the spastic condition is probably of intrinsic origin, thus indicating a lesion within the stomach even though it cannot be seen."

He also points out that if reliable results are to be obtained from the administration of belladonna in these cases it is absolutely necessary to push it until the physiological effect is produced as evidenced by dryness of the throat and dilation of the pupils, there is no doubt that failure in this respect may account for the conflicting opinions regarding the efficiency of the drug in these cases. It will be easily seen that unless this point is observed with the greatest care, the surgeon may oftentimes be led into grievous error.

The symptomatology of this condition may vary considerably. It seems to occur more frequently in women than in men, and there is very frequently a history of gastric disturbance, more or less typical of gastric ulcer, extending over a period of years. Epigastric pain is a common symptom, and may occur shortly after food or be delayed until towards the close of digestion. In some cases I have seen it is not so much a pain as a distressed feeling in the epigastrium, which the patient finds hard to describe. Vomiting may be an early symptom, and is invariably present in the later stages when obstructive symptoms develop. If the constriction is near the cardiac end of the stomach, the symptoms will resemble closely stricture of the lower end of the oesophagus, whereas in cases where the constriction is situated near the pylorus, and the lower loculus is small, the symptoms will resemble those of pyloric obstruction. In the cases secondary to extra-gastric

disease, such as chronic appendix, cholecystitis or duodenal ulcer, the symptoms will chiefly be those of the associated lesion, to which will be added symptoms of obstruction, usually of the pyloric type.

Treatment of the condition irrespective of cause, is surgical. Even in those cases not associated with gastric disease, little can be accomplished by medical treatment. If due to a chronic appendix, it must be removed. If the gall bladder is the offending organ, it must be removed or drained, and if duodenal ulcer is present gastro-enterostomy is indicated.

In considering the surgical treatment of those cases due to organic disease of the stomach itself, the close relationship which exists between chronic ulcer and gastric carcinoma must be constantly borne in mind. Judging from the reports of different well-known pathologists, there is no doubt that from fifty to seventy per cent. of cases of cancer of the stomach give an antecedent history of ulcer, extending over a period of years. On account, therefore, of the frequency with which chronic ulcer tends to become cancerous, it is only logical to conclude that the aim of any surgical procedure should be to remove, if at all possible, the pathological tissue. For this reason such operations as gastropasty and gastrogastrostomy are not to be recommended. Simple dilatation of the constriction, while it does not remove the pathology, may be justifiable in a small percentage of cases where, on account of the numerous adhesions present, it is almost impossible to do anything else. Gastro-enterostomy may be condemned on the same grounds, but while it does not remove the pathology, it does change the chemistry of the stomach, and probably in this way renders the development of cancer less likely. There is a small percentage of cases in which I think gastro-enterostomy is the operation of choice as the following case will serve to illustrate:

Miss E. J., aged 20 years: family history—father was suffering from an inoperable carcinoma of the stomach. He had been treated for ulcer of the stomach for seven years before a definite diagnosis of cancer was made.

Personal history—in 1910 she had an attack of stomach trouble which lasted two weeks, during which time she vomited a great deal. From that time until January 1, 1916, she suffered from occasional attacks of pain in the epigastrium with a varying degree of vomiting and the passage of dark stools. For the first week in January, 1916, she vomited almost continuously. I x-rayed her



stomach and found an hour-glass contraction with a large cardiac loculus and a small but definite pyloric loculus. I operated on her on January 13, 1916, and found a large saddle ulcer of the lesser curvature about two inches from the pylorus, and the stomach, in that area, bound down with very dense adhesions. Owing to the fact that it was impossible to remove the ulcerated area without doing a more extensive dissection than I considered the condition of the patient warranted, and also on account of the fact that the pyloric loculus was so small as to be practically negligible, I considered a posterior gastro-enterostomy with the upper segment of the stomach to be the best procedure and did so with gratifying results. The last report I had from her was two years after the operation, and at that time she was thirty pounds heavier than before operation and had not had any trouble since operation. While a gastro-enterostomy does not remove the pathological condition, I think in such a case as the above, it is the wisest course to follow.

But it is in those cases in which the lesion is situated in the central third of the stomach and in which the loculi are of nearly equal size, that one is able to get the best results from surgical treatment. It was in this type of case that the operations of gastropasty and gastro-gastrostomy were advocated a few years ago, but Moynihan in speaking of these operations says: "In many of the recorded cases, there was recovery without relief." This is only what we might expect for the pathological condition is not removed and the chemistry of the stomach remains unchanged. In gastro-enterostomy, on the other hand, while the affected part is not removed, the chemistry of the stomach is changed, and on this account we are likely to get more or less relief. The operation of choice, however, is a partial resection of the sleeve type. This operation can be done in the same time and with as little shock as the operations just referred to and at the same time it has the decided advantage of removing the diseased part and with it the danger of the development of carcinoma at a later date. In all these cases the possible presence of associated lesions must be kept in mind, and in all those cases in which duodenal ulcer is present as well as the hour-glass deformity, a gastro-enterostomy must be done in addition to the partial resection. The following case will serve to illustrate:

Miss S., age 55 years.—Had enlarged tonsils and discharging ears in early life. Teeth were also very poor. Twenty-one years ago began to suffer from attacks of water brash with pain and

vomiting, which would last from two to three days to two or three weeks. Would then go from six to eight months perfectly well. Noticed that the attacks had a tendency to come on in the spring, and fall. Had tonsils and teeth removed twenty years ago, but still continued to have attacks as before. For the last ten or twelve years she had more or less trouble the greater part of the time. For the last two years has had constant distress, vomited a great deal, especially at night. To use her own expression "She wondered where it all came from." Her normal weight was 125 pounds, her weight before operation was 110 pounds; hæmoglobin 60 per cent. She had also lost a great deal of strength, was quite anæmic, her red blood count being only 3,200,000. On physical examination there was a marked tenderness in the epigastrium but no tumour could be felt. X-ray examination revealed a typical hour glass deformity of the B type with a perforating ulcer on the lesser curvature situated a little nearer the cardia than the pylorus. There was also a deformity of the duodenal cap. I operated on her on March 5th, and found the condition of the stomach referred to above; there was also a duodenal ulcer which was producing obstruction of the duodenum, and her appendix was bound down by adhesions, the gall bladder was normal. I removed the constricted portion of the stomach including the ulcerated area, and about one inch of the stomach wall on each side of the constriction. I then united the cut ends in the usual way. Owing to the fact that she was suffering also from a stenosing duodenal ulcer, I did a posterior gastro-enterostomy attaching the loop of the jejunum to the posterior surface of the lower half of the stomach. She left the hospital in less than three weeks, taking almost full diet without any discomfort. This case illustrates very well the necessity in all cases, not only of careful examination of the stomach itself, but of making careful search for associated lesions in other organs, especially the appendix, gall-bladder and duodenum. It also suggests very forcibly the causal relationship between the infected teeth and tonsils and the stomach lesion.

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TWO CASES OF SUPERNUMERARY URETERS OPENING  
INTRAVESICALLY\*

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IN 1918 Mertz (1) extensively reviewed the subject of multiple ureters, having collected 300 cases from the literature and contributed 16 additional cases. Since that time Judd (2) has reported a case opening extravesically, and Wilhelmj (3) a case opening intravesically.

In 278 of the 318 cases the type of anomaly was stated, there being 63 of unilateral partial duplication, 9 of bilateral partial duplication, 141 of unilateral complete duplication, 50 of bilateral complete duplication, and 14 of bilateral duplication, being partial on one side and complete on the other. I wish to add two cases to the literature, one of unilateral complete duplication, and the other of bilateral duplication, complete on one side and partial on the other.

## EMBRYOLOGY

About the end of the first, or the beginning of the second month of embryonic life, a diverticulum arises from the posterior wall of the lower end of the Wolffian duct, close to where the latter opens into the cloaca. This diverticulum or renal bud grows dorsalward and forward along the posterior abdominal wall, where its blind extremity expands and divides normally into two branches, which grow into the blastoma of the kidney. Each branch then divides, and by continued subdivision forms the straight and uriniferous tubules, and calyces of the kidney. The proximal portion of the diverticulum becomes the ureter.

The kidney reaches its normal height about the end of the second month, and then receives its blood supply, the vascularization coming directly from the aorta, and occasionally from the suprarenal artery. The vessels seem to choose the nearest route to the hilum, the branch from the suprarenal sometimes entering the upper pole.

The ureter grows away from the Wolffian duct, and empties higher and more laterally. It as-

sumes its relatively normal position in the same stage in which the kidney reaches its normal height, or about the end of the second month. The two processes are, however, quite distinct, the change in the position of the kidney being due to the development of the distal part of the bud and its surroundings, while the change in the position of the ureter is related to the growth of the lower end of the Wolffian duct.

Pohlman (4) has tabulated the steps in the development of the tract as follows:

(1) The renal bud arises dorsally on the Wolffian duct after the duct has reached the cloaca, and at a short distance from its entrance.

(2) The two buds grow dorsally, lying close together, each being capped with a mass of renal mesenchyme.

(3) Each bud divides into an upper and a lower sprout at some distance from the Wolffian ducts.

(4) The kidney wanders up from a position in front of the second sacral vertebra, rotates at the mid-lumbar region, and finally reaches its normal height about the end of the second month.

(5) It becomes vascularized after it has reached its normal height.

(6) The ureter changes its position on the Wolffian duct from dorsal to lateral, and comes to empty distinct from it.

(7) The ureter loses its relation to the duct entirely, and opens higher and more laterally.

Should the renal bud divide too early, or the division extend into the ureter segment, that splitting found in the ureter itself would remain a permanent one, and any variation might exist as a result, from an exaggeration of the usual upper and lower pelves to an incomplete reduplication of the ureter. An incomplete double ureter may be defined as two ureters with a common orifice.

Should the splitting of the renal bud be so complete that it is affected by the shortening of the segment of the Wolffian duct lying between it and the cloaca, it is possible for each division to ac-

\*From the Wards and Pathological Laboratory, the Hospital for Sick Children, Toronto, Ont.

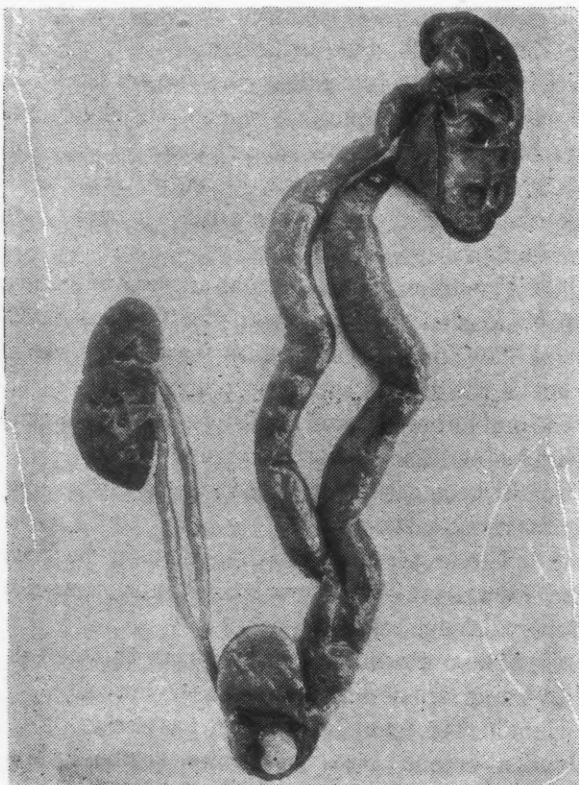
quire a distinct orifice in the duct. This would result in complete double ureter.

Pohlman has stated rules for double ureters, which hold true with relatively few exceptions. They are as follows:

In incomplete double ureters the ureter from the upper pelvis lies ventral to the one from the lower pelvis, and there is a common orifice into the bladder. In complete double ureters the proximal relations are the same, but as they approach the bladder, the ureter from the lower pelvis swings lateral to the one from the upper pelvis, and empties into the bladder lateral and slightly above it.

#### CASE REPORTS

*Case 1.*—E. H., aged four months, admitted with a history of vomiting after feedings since birth; vomiting sometimes projectile in character.



*CASE 1.*—The left kidney has purposely been placed at a much higher level than the right kidney in order to demonstrate the increased length of the left ureters. Probes are shown placed in the common orifice of the ureters of the right kidney, in the orifice of the ureter from the lower pelvis of the left kidney, and in the urethral orifice.

The mother had observed that the urine was always scanty in amount. Weight on admission 7 pounds, 6 ounces.

Physical examination revealed a poorly developed, very poorly nourished infant in a state of

collapse. The skin was markedly dehydrated, the abdomen lax and scaphoid with visible peristaltic waves; no pyloric tumour felt. The anterior fontanelle measured 3 x 4 fingers, with well-marked craniotables, and slight epiphyseal enlargement. The external genitalia were normal.

Laboratory report: Urinalysis, acid in reaction, negative for albumin and sugar. Microscopic examination showed enormous numbers of pus cells, and many long chains of streptococci in an unstained smear. R.B.C. 6,000,000, W.B.C. 16,000, with 30 per cent. polymorphonuclears, and 70 per cent. lymphocytes. Hæmoglobin 100 per cent., temperature 98.3F. Diagnosis: 1, pyelitis; 2, rickets.

The infant was transfused, and given daily interstitial administration of 5 per cent. glucose solution, the pyelitis being treated with potassium citrate, grains 100 per diem. He succumbed four days following admission.

At autopsy both kidneys were in their normal positions. The right kidney showed remnants of foetal lobulation. Its greatest length was 5.2 centimetres, and greatest diameter 2.3 centimetres. On section the cut surface appeared to be normal. Two ureters emerged from the hilus, about 1 centimetre apart, from two distinct pelves, and followed a normal general course to the bladder, the ureter from the cephalic pole, 10.5 centimetres in length, lying anterior to the ureter from the caudal pole, 9.5 centimetres in length, and uniting with its fellow about 3 centimetres from the bladder. There was a single opening into the bladder in a normal position in relation to the trigone. Both ureters were slightly dilated, and contained some turbid urine.

The left kidney also showed remnants of foetal lobulation, but to a greater degree than the right kidney. Its greatest length was 6.4 centimetres, and its greatest diameter 3.6 centimetres. The amount of kidney tissue was very small, being only a few millimetres in thickness. Two distinct pelves were present, as on the right side, but here they were quite dilated, the lower to a much greater degree than the upper. Both ureters were markedly dilated and tortuous, and were filled with a yellowish turbid fluid. The ureter from the caudal pole, 19.0 centimetres in length, lay posterior to the ureter from the cephalic pole, and opened by an apparently normal orifice into the bladder, also in a normal position in the trigone.

The ureter from the upper pelvis, however, 21 centimetres in length, while at first anterior to its fellow, became more medial as it neared the



bladder, and penetrated the bladder wall at a point about 7 millimetres lower and more medial than the other ureter. It presented in the bladder cavity as a bean-shaped, cystiform swelling about 1 centimetre in diameter, with an opening in the form of a vertical slit, about 2 millimetres in length, situated on the lower part of the posterior wall. When the cyst was distended with fluid from above, it was observed that the slit-like orifice lay against the posterior bladder wall, and that the cyst partially blocked the opening of the other ureter on the same side. It also lay over the urethral orifice at the apex of the trigone.

The bladder contained about 15 cubic centimetres of yellowish turbid fluid, similar to that found in the left renal pelves and ureters, and the bladder wall showed some congestion of the mucous membrane.

Hæmatoxylin and eosin sections of the right kidney revealed nothing abnormal. Sections of the left kidney showed both the cortex and medulla to be greatly thinned out, with a considerable increase in connective tissue, and infiltration with small round cells immediately underlying the pelvic epithelium. In this region, remnants of tubules could be made out. Some of the tubules were considerably dilated, being lined with flattened epithelium. A few of the glomeruli showed dilatation of the capsular space with fluid, the tuft being compressed to one side. The majority of the glomeruli, however, were normal. Diagnosis: hydronephrosis, with beginning pyonephrosis.

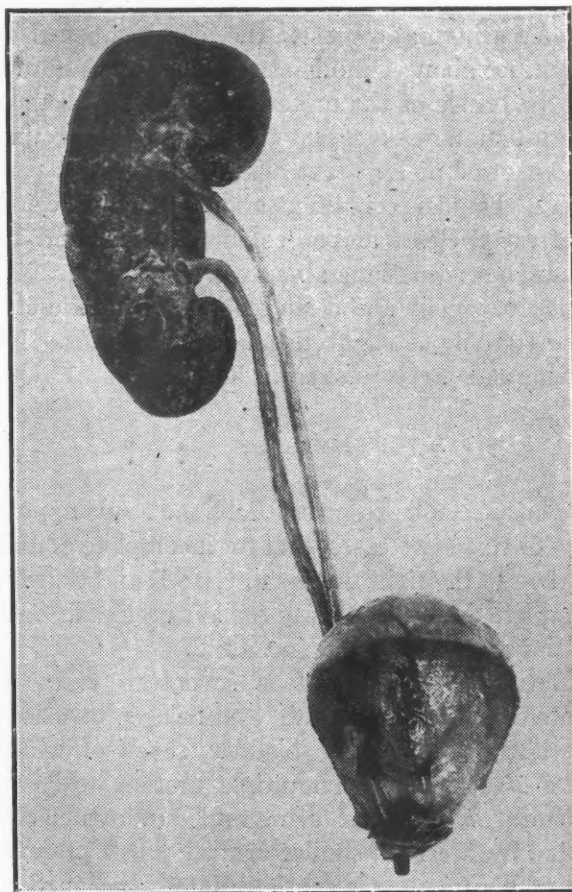
Direct smears of the urine from the bladder showed large numbers of pus cells, and Gram positive cocci in chains; also a few Gram negative bacilli. On culture the predominating organism was a non-hæmolytic streptococcus, with some colon bacilli.

*Case 2.*—F. W., male, aged 3½ months, with a complaint on admission of frequent green stools with mucus for two weeks. The infant had vomited considerably during the week previous to admission. The vomiting and diarrhoea were sequels to a bad feeding history with artificial foods high in carbohydrates, which need not be gone into detail here.

Physical examination revealed a poorly developed, badly nourished infant in a very toxic state. The eyes were sunken and the skin was markedly dehydrated. Chest and abdomen were negative.

Laboratory report: urinalysis, acid in reaction, a trace of albumen, negative for sugar. Microscopic examination showed a few hyaline casts. R.B.C. 4,200,000, W.B.C. 28,500, with 40 per

cent. polymorphonuclears and 60 per cent lymphocytes. Hæmoglobin 70 per cent., temperature 98.0F. Diagnosis—1, Acute intestinal intoxication; 2, Fermentative diarrhoea.



CASE 2.—Probes are shown placed in the orifices of the two right ureters, of the left ureter, and in the urethral orifice.

The feedings were corrected, the baby was transfused, and 5 per cent. glucose solution was administered daily, both intravenously and interstitially. The child seemed to improve, but developed double otitis media ten days after admission, following which his general condition became worse, and he suffered a collapse and died four days later. Five days before death the urine was negative for albumen, and showed no microscopic changes.

At autopsy both kidneys were found to occupy their normal positions. The left kidney, 5.3 centimetres in length, and 2.8 centimetres in diameter, showed nothing abnormal outside of being somewhat congested. From a single pelvis arose a single ureter, 9.5 centimetres in length, which pursued a normal course to the bladder, and emptied by a normal orifice in the trigone.

The right kidney, 5.8 centimetres in length and 3.0 centimetres in diameter, also showed a slight

amount of congestion. Two distinct pelves gave rise to two ureters about 1 centimetre apart at their origins. The ureter from the cephalic pole, 9.5 centimetres in length, lay anterior to its fellow, 8.5 centimetres in length, and after following a normal course to the bladder opened by an orifice about 1 millimetre medial and anterior to the orifice of the ureter from the caudal pole. Both ureters were patent throughout their course and showed no apparent dilatation.

The bladder contained about 15 cubic centimetres of clear, amber coloured urine, and its walls showed nothing abnormal.

Hæmatoxylin and eosin sections of the kidneys showed only a slight degree of nephrosis. No glomerular involvement was found.

#### REMARKS

Thus it can be seen that Pohlman's rule applies also to these two cases, that for incomplete double ureters to the right ureters in Case 1, and that for complete double ureters to the left ureters in Case 1, and the right ureters in Case 2.

Bottomley (5) mentions seventeen cases of ureteral obstruction with cystiform protrusions of the ureter into the bladder, seven of which were associated with multiple ureters, while in thirteen of the cases of ureteral duplication collected by Mertz, a similar condition was present. Johnson's (6) case is specially interesting in that the cyst presented at the vulva. He writes as follows: "The vesical orifice of the right ureter is normal in size and position. From the corresponding point on the left side, a raised column 5 millimetres across, covered by the mucous membrane of the bladder, extends downwards, gradually increasing in diameter, and ending in a bulbous enlargement which, with the parts in their natural position, occupied the whole length of the dilated urethral canal, and protruded externally between the labia. On its posterior surface the bulbous enlargement is attached to the floor of the urethra nearly as far as its orifice. On its right side the enlargement presents a long rent, freely opening the hollow interior, from which the probe can be passed up into the ureter."

In Bottomley's case there was a history of 2½ months' illness from vomiting, diarrhoea and loss of weight as symptoms in a 5½ months infant. His findings were similar to those in Case 1, with the exceptions that in his case the ureters arose from a common pelvis, and the cyst had no opening either into the bladder or into the other ureter,

while here there were two distinct pelves and the cyst possessed an opening into the bladder.

According to Mertz there is no pathological process of the kidney, ureter or bladder dependent directly upon the existence of a double ureter nor does he conclude from his study on the subject that there is one type of disease more prevalent in patients with double ureters than in those with no such anomaly, although he quotes one writer as saying that kidneys with double pelves and ureters are frequently affected with calculi. Case 2 demonstrates that the anomaly can exist without giving rise to disease. The hydronephrosis and pyonephrosis present in Case 1 did not depend directly on the existence of double ureters, for such processes are present in a much greater number of patients possessing single ureters.

In the 276 cases of Mertz, disease was stated to be present in 85, or 30 per cent. In 76 of the diseased cases the pathological condition was stated, and of these there were 31 of hydronephrosis and 18 of pyonephrosis.

In Case 1 the obstruction resulting in the hydronephrosis and secondary pyonephrosis may have been due to either of two factors. It may have been caused by pressure of one ureter against the other when they crossed, for it has been observed that stasis is produced in such a case, especially when the ureters are closely bound together. Or it may have been brought about by the cystiform swelling acting as a valve when distended. This was tried out experimentally, it being found that when the ureter with the cystiform ending was filled with fluid at the pelvis with a syringe, no great distension took place at first, the fluid passing readily into the cyst. But when this was filled the ureter dilated, and more pressure was required to force the fluid from the orifice of the cyst. When the other ureter was filled with fluid, while the first was still distended, it was found that resistance to outflow from its orifice was also present. On the right side, fluid passed through both ureters with no difficulty.

Thus the cystiform swelling when distended with urine was responsible for the stasis in both ureters. Its own orifice was pressed against the posterior bladder wall, thus obstructing any outflow from its interior, and also it covered up the opening of the other ureter and blocked the urethral orifice. The latter would result in distension of the bladder, with increased intravesical pressure, which in turn would cause the cyst to increase the existing blockage of the left ureters, and would also cause some obstruction in any



outflow from the right side. This latter explains the cause of the slight dilatation of the right ureters.

These two cases were not suspected until autopsy, but as multiple ureters produce no pathological processes directly dependent on their existence, they produce no symptoms and hence cannot be diagnosed by this means. The single ureter with an ectopic orifice produces the same symptoms as an aberrant supernumerary ureter with a similar orifice. Cystoscopic examination might have revealed the condition in these cases, but as yet it is a procedure not carried out very extensively with infants.

In closing I wish to acknowledge my indebtedness to Dr. Alan Brown, physician-in-chief, for his many valuable suggestions, and for permission to use these records.

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**Prevention of Simple Goitre in Man.**—The ultimate cause of simple goitre is totally unknown, notwithstanding a relatively large amount of study. The immediate cause is a lack of iodine. The enlargement, therefore, is a symptom and may result from any factor which increases the iodine needs of the organism, as in certain types of infection, or which interferes with the normal utilization of iodine; or it may result from actual experimental deprivation of iodine. After consideration of all the various substances, agents and theories that have been put forward as having a role in the etiology of goitre, David Marine, New York, and O. P. Kimball, Cleveland (*Jour. A. M. A.*, Oct. 1, 1921) state that at present we must fall back on the view that thyroid hyperplasia (goitre) is a compensatory reaction arising in the course of a metabolic disturbance and immediately depending on a relative or an absolute deficiency of iodine. No accomplishment in preventive medicine has a firmer physiologic and chemical foundation than that underlying goitre prevention. As the work of prevention is based on certain of these facts, the more important are reviewed by the authors. A milligram of iodine, given at weekly intervals, has been found sufficient to prevent thyroid hyperplasia in pups. If the iodine store in the thyroid is maintained above 0.1 per cent., no hyperplastic changes, and therefore no goitre, can develop. The method as applied to man

consists in the administration of 2 gm. of sodium iodide in 0.2 gm. doses, distributed over a period of two weeks, and repeated each autumn and spring. This amount of iodine is excessive, and far beyond the needs of the individual or of the ability of the thyroid to utilize and store it. One gram distributed over a longer period would be better. The form or mode of administration of iodine is of little consequence. The important thing is that iodine for thyroid effects should be given in exceedingly small amounts, and it is believed that most of the untoward effects recorded are due to the excessive doses employed, or more concretely, to the abuse of iodine. The results of their two and one half years' observations on school girls in Akron are as follows: Of 2,190 pupils taking 2 gm. of sodium iodide twice yearly, only five have developed enlargement of the thyroid; while of 2,305 pupils not taking the prophylactic, 495 have developed thyroid enlargement. Of 1,182 pupils with thyroid enlargement at the first examination who took the prophylactic 773 thyroids have decreased in size; while of 1,048 pupils with thyroid enlargement at the first examination who did not take the prophylactic, 145 thyroids have decreased in size. These figures demonstrate in a striking manner both the preventive and the curative effects. The dangers of giving iodine, in the amounts indicated, to children and adolescents are negligible.

## Case Reports

### A PSYCHOSIS OF HYSTERICAL TYPE\*

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**B**ILATERAL functional blindness is, I believe, of sufficient interest and rarity to justify the presentation in some detail of a case of hysteria and psychosis exhibiting this symptom.

May N., a Canadian-born girl of seventeen, the youngest of a family of nine and the child of her parents' old age, was admitted to the Brandon Hospital for Mental Diseases on April 29, 1921. Family history was negative, though her father died of cerebral arteriosclerosis a few weeks ago in the same hospital. The patient had always been a nervous child and somewhat spoiled. As a child she was subject to sudden rises of temperature, as high as 105, without obvious cause. She also suffered from nocturnal enuresis, from which she never fully recovered. She is said to have been of a sunny, sociable temperament, but rather excitable. She was backward in school. Six years ago had "St. Vitus' dance," from which she was said to have recovered in six weeks under "osteopathic treatment." She was under weight until about a year and a half ago, when she became fleshier and at the time of admission weighed 119½ pounds. Menstruation began at the age of fifteen; was regular until onset of present illness and then ceased, but became regular again a few months ago.

Last winter patient became emotional and subject to fits of depression. During January she caught a girl stealing from the pockets of other students, reported it, and as a result was interviewed by the police. Following this incident she worried a great deal and complained of numbness of the hands, particularly the right, and it was noticed that they were "purple". She had several of these attacks, all of short duration. A few days later she imagined that someone was

trying to get into the house and would say "He's after me now." One night she thought she saw flashlights and imagined people were reflecting lights on her from mirrors. She improved for a time and then became worse. On two occasions, during the first week in April, she became temporarily blind, once for two hours. On April 7th she received a fright when her father, in a fit of temper and partially dressed, came into the kitchen, and she became suddenly blind again and has apparently not been able to see since. During the following nine days she refused food or water and resisted being fed. She then became ravenous, but owing to her helplessness and blindness, had to be spoon fed. She was unclean in her habits. She was resistive, restless and destructive. Her talk was incoherent and she did not recognize members of her family. It was noticed that she did not use the right side of her body as well as the left. She was admitted to the Hospital for Mental Diseases on April 29th.

Examination showed a well-developed girl, with no physical stigmata. The hands and feet were cyanosed. At first there was a slight systolic murmur at the apex of the heart, without definite enlargement, a sinus arrhythmia and an occasional extrasystole. These have now cleared up. The blood pressure has been 135, to 140 m.m. Hg. A radiogram of the cranium is negative. Laboratory tests, including a blood Wassermann and spinal fluid examinations, were negative.

Neurological examination showed that vision was apparently nil, though the corneal and conjunctive reflexes were present and the pupillary reflexes normal. Examination of the fundi has always been normal. The patient has never injured herself from lack of vision, and at times has been able to walk about a strange room, full of apparatus, without injury to herself. Smell, taste and hearing were apparently normal. There was a general weakness of the limbs. At first the feet were dragged limply as patient stumbled along, and she had to be supported. The weakness of the limbs seemed to be greater on the right side. Co-ordination was normal. It was difficult to do a sensory examination, but there was apparently no marked change except for an irregular

\*Abstract of a paper read at the annual meeting of the Manitoba Medical Association, Winnipeg, November 9, 1921.



distribution of analgesia all over the body. The patient was able to endure unusual pressure over the supra orbital nerves, but was quite sensitive to the pain of a lumbar puncture. There were no pathological reflexes. All tendon reflexes were somewhat increased and at times there has been slight unsustained ankle clonus.

Mentally patient is almost completely inaccessible and un-cooperative. At first she was resistive and irritable, now she is passive and usually placid. At times, however, she becomes angry and scolds when other patients tease or annoy her. She may laugh or cry according to her mood. She was destructive to clothing and bedding. She frequently undressed herself and at times exposed herself to other patients in an erotic manner. She was very unclean in her habits. At first she had to be spoon fed like a child, but now feeds herself. She wanders or sits about the ward quietly, sometimes singing or talking to herself and when addressed often commences patting herself on the breasts or abdomen.

She appears to be more or less out of touch with her environment as to time, place and person, though she responds to her own name, appears to recognize her nurses and at times seems to have some idea as to where she is. There does not appear to be any fundamental memory defect. At first she had delusions of a persecutory trend, which have disappeared. She has evidently a feeling of inferiority or of being like a helpless child. The thought processes show incoherence, slowness of associations, inability to understand, poverty of ideas, stereotypy of words and phrases and an echolalia.

Suggestibility was evident at first in a negative way by resistiveness, but now in a positive way by echolalia and cataleptic attitudes.

We have here a young girl of neurotic personality as shown by the nocturnal enuresis, the chorea and the excitability, who was passing through the critical period of adolescence. Following certain mental shocks she develops sensory disturbances, a variable analgesia, an apparent weakness of the limbs most marked on the right side, and a sudden loss of vision, all without organic neurological signs.

The patient, mentally, passes through a stage of mild delusions and visual hallucinations, resistiveness and irritability to an apparently demented condition characterized by incoherence of speech, poverty of ideas, apparent disorientation, cataplectic phenomena and indifference to personal habits.

There is no evidence to indicate organic lesion of the nervous system. Treatment so far has produced very little in the way of result, although there has been considerable general improvement in her adjustability to environment, but this is very far from recovery.

In conclusion, therefore, we have here a patient exhibiting hysterical phenomena in the physical field, the most interesting of which is that rare condition, a complete functional blindness, and in the mental field a psychosis characterized by delusions and simple visual hallucinations at first, but later by an apparent dementia with inaccessibility, defective contact with environment, undue suggestibility somewhat similar to catatonia, but differentiated by a peculiar variability of depth—a psychosis of hysterical type.

**Intestinal and Hepatic Reactions in Anaphylaxis.**—The anaphylactic reaction in guinea pigs and dogs, W. H. Manwaring, Stanford University, California (Jour. Amer. Med. Assoc., September 10, 1921) says, is characterized by the explosive formation or liberation of smooth muscle relaxing substances by the hepatic parenchyma. These substances are directly responsible for the hepatic vasodilatation in dogs, and either directly or indirectly responsible for the general vasodilatation. In guinea pigs, these substances act as an antianaphylactic mechanism, tending to overcome the initial bronchial and

vascular spasms or to prevent these spasms if the protein injections are made by way of the mesenteric veins. The chemical nature of these smooth muscle relaxing substances is unknown. There is no reason, at present, to believe that they are antibodies. There is evidence that they are not cleavage products of the specific foreign protein. In dogs, there is evidence that the hepatic reaction is secondary to a preliminary serum reaction. The hæmorrhagic intestinal lesion in dogs is a secondary phenomenon, due to the local action of intestinal enzymes.

## Retrospects

### THE TREATMENT OF CHRONIC NEPHRITIS

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AS an introduction to, and a summary of, the method of management of renal disease based upon the study of the body chemistry, one reverts to Janeway's article in the *American Journal of the Medical Sciences*, February, 1916.

His views in the main still hold good, for example "I say 'practical management of the patient' because except in the rarest instances we have no real treatment of the disease"; or again: "Improved methods of investigation make possible the more exact adjustment of treatment to the needs of the individual case, and the relief of the patient from unnecessary restrictions.

"In spite of all this, it brings us not one whit nearer the real goal of treatment, prevention or cure of the disease.

"If we ever achieve that, it will be through new knowledge of the causes of these obscure but frequent affections, and every attempt to approach this problem from a new viewpoint should be enthusiastically welcomed by every medical man." 1.—Excepting postural albuminuria and residual albuminuria after acute nephritis, there is a large group of cases showing albumin and casts as the only evidence of impairment.

In these, safeguarding treatment only, is indicated. Severe physical strains, over-eating, the consumption of creatinin in soups, meat extracts, etc., the abuse of condiments and alcohol, and excessive salt intake, are to be avoided.

2.—Albuminuria with hypertension, with slight subjective symptoms. Here, too, safeguarding treatment is necessary, consisting of the avoidance of all blood pressure raising influences, insistence upon a break in the middle of the day for rest, but except in rare cases permission for a man to continue at his business.

More exercise than is ordinarily permitted; insistence upon physiological economy in nutrition,

and limitation of the salt and fluid intake; and when possible a winter residence in a warm climate.

3.—Hypertension with outspoken myocardial insufficiency—the common type of chronic Bright's disease. These cases present the problem of the treatment of a circulatory disease, and both safeguarding and symptomatic treatment are necessary.

It is here that the nephritic test meal, and the phenol-sulphophthalein test are of great value in differentiating the essentially renal from the principally cardiac symptoms.

The chronic passive congestion of the kidney of cardiac origin tends to retain salt and encourage cedema.

Effective digitalization for the auricular fibrillation accompanying this type is necessary, and even the cases without fibrillation but with cedema and congested liver will often react to digitalis, though sometimes they will not.

Following a Mosenthal test meal, the greater the contraction of the kidney the more will the specific gravity of the two-hour specimens of urine tend to be constant at a low level, and the greater will be the nocturnal polyuria and the less the nitrogen concentration in the urine.

The strict limitation of the salt and water of the food is essential in chloride retention, and the presence of a high figure for blood nitrogen on chemical examination of the blood calls for radical restriction of the proteid intake down to approximately 30 gm. of N. daily.

The Karell diet—the administration of 800 c.c. of milk as the total daily intake—long employed empirically, is an ideal method for rigorous restriction of salt, water and proteid.

4.—General cedema without notable myocardial insufficiency. This group may include such conditions as protracted acute nephritis with a good prognosis, amyloid disease, and degenerative affections of the tubular epithelium.

These cases all show marked salt retention in the test meal, while the phthalein test and the nitrogen excretion may be normal. Purgation, sweat baths and radical salt restriction are indicated. Some of this group may pass into the next.



5.—Advanced renal insufficiency with uræmic symptoms. Retinal changes are usual. - The renal test meal shows a fixation of the specific gravity of the urine at a low level, both nitrogen and salt concentration are reduced and the phthalein test shows low readings in advanced cases mere traces, and the Ambard coefficient is uniformly high.

In Janeway's words "treatment of the severest renal insufficiency is purely symptomatic and is not a cheerful duty."

The distress of breathing requires relief for which chloral with or without bromides may be tried, but for many morphine alone is effective.

Patients should be encouraged to sit up and a vasodilator on retiring may be useful.

Diet is limited by the patient's incapacity to take food. Bleeding followed by transfusion has given symptomatic improvement, and injection of corpuscles from centrifugated blood has been tried.

For convulsions, bleeding of 500 to 600 cc. is indicated.

It is essential that one pay attention to the element of myocardial inefficiency, which in its turn adds by passive congestion to the burden of the damaged kidney.

The same holds true in regard to obstruction in the urinary tract which by back pressure diminishes the secreting power of the kidney, and surgery may at times render medical treatment superfluous. After all is said, however, treatment of severest renal disease is often ineffectual and becomes a problem in the choice of sedatives.

The surgical treatment by decapsulation was seen to yield good results in two cases and failures in a number.

Christian (*J.A.M.A.*, vol. 74, No. 24) points out three aims in the treatment of chronic nephritis: (1) To stay the progress of the lesion. (2) To remove œdema if present. (3) To prevent production of toxic substances.

*To stay the progress of the lesion*; all foci of infection are removed, but the kidney damage is already done, and too much cannot be expected from this source.

To decrease renal work, the diet is limited, but there is still little real knowledge as to the optimum proteid, salt, and water intake, and careful observation of a large number of cases over a period of years is necessary to furnish this knowledge.

*The removal of œdema.*—We are still in the dark as to the essential cause of œdema and therapy contents itself with the limitation of salt and water intake, and increasing elimination, but frequently

the kidney elimination of salt and water is at such a low level that limitation of intake cannot overtake it.

True renal œdema is not affected by diuretics.

*Prevention of toxic effects.*—There is evidence that low protein feeding diminishes the tendency to the formation of toxic substances, and their elimination may be assisted by purgation, sweating by diuresis and mechanically by bleeding.

Barker (*ibid*) advises for the prevention of nephritis "To keep every patient with tonsillitis in bed till the throat is well, to take care of abscessed teeth and to keep patients from becoming overweight."

Janney (*ibid*) warns against too great restriction of protein and increase of carbohydrate and fat in the diet, leading to obesity and weakness.

In the same discussion Christian suggests in the absence of an etiological classification that nephritis be classified as (a) Acute nephritis (b) Chronic nephritis with œdema (c) Chronic nephritis without œdema (d) Subacute nephritis.

Epstein (*Amer. Jour. Med. Sci.*, vol. cliv, No. 1) describes a type of renal œdema or nephrosis, degenerative in character, marked by normal blood pressure, absence of cardio-vascular changes and with a large amount of albumin in the urine with or without casts and a change in the proteid formula of the blood, serum-globulin being three-quarters instead of one-third of the total, and albumin dropping from two-thirds to one-quarter, while at the same time the blood lipoids are greatly increased.

Due to the lowered blood proteid the osmotic pressure from the tissues toward the blood is diminished and œdema results.

The treatment consists in cutting down the fats of the diet, raising the proteid and restricting the carbohydrates.

A diet of 2500 calories containing 240 gm. protein 40 gm. fats and 300 gm. carbohydrates being given for a patient weighing 150 pounds. Upon this diet he has found rapid and permanent relief of the œdema.

*Etiology.*—Elliott (*J.A.M.A.*, vol. 68, No. 26) discusses a group of forty cases of nephritis of chronic type in which in 18 cases some focal infection was demonstrated with a reasonably close time relation to the nephritis, in the other 22 the relation was dubious.

Dental infections were discounted by the presence in all but four of some other possible source of infection. In 33 cases in which a blood Wassermann was done it was positive in one case.

## ACUTE POLIOMYELITIS

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THE seasonal incidence of acute poliomyelitis has been noted from the earliest recognition of the disease and at the present time a review of the appearance and treatment of this most crippling of all acute infections should not be out of place.

In any such review the discussion of the subject at the last meeting of the British Medical Association, under the section of Orthopædics and Diseases of Children, first attracts our attention.

In the opening paper at this meeting, Dr. E. Farquhar Buzzard discusses the classification and diagnosis of this disease, differentiating it from such other acute infective diseases as meningitis, toxic polyneuritis, Landry's paralysis, encephalitis lethargica, and disseminated myelitis, and presents a forceful plea for its early recognition while still under the observation of the general medical practitioner. To meet this obvious requirement it is essential that acute poliomyelitis be classified among the acute infectious fevers, such as scarlet fever, varicella, enteric fever and measles, and that it should no longer be regarded as an essential affection of the nervous system, surrounded by an atmosphere of mystery and relegated to the domain of the specialist.

When so classified, the disease will be readily regarded as a possible cause of the sudden onset of fever, headache, vomiting and convulsions and will demand the same diagnostic consideration as is given small-pox or typhoid fever.

It should no longer be necessary to await the full development of a flaccid paralysis before the possibility of this affection is borne upon the mind of the physician, and, especially is this so during an epidemic of it when every fever or chill should awake the observer to the consideration of its differential diagnosis.

The belief, heretofore so prevalent, that acute poliomyelitis was a painless disease has led to many mistakes, as the association of pain in the affected limbs, at once suggested the diagnosis of acute rheumatism and blinded the observer to the possibility of the much graver malady.

There is no doubt that Dr. Buzzard has struck a timely note in thus insisting on the classification

of acute poliomyelitis among the infectious fevers and focusing the attention of the profession upon the early diagnosis of the disease. When we inquire, however, into the particular clinical manifestations which permit of a definite diagnosis while still in the pre-paralytic stage, we are forced to admit that there are none. Dr. Buzzard asks the question: "Can the diagnosis be made at a stage when appropriate treatment would be likely to avert an influence on the course of the inflammatory process in the spinal cord?" and answers it in the negative. Serum diagnosis is as yet uncertain, and in any case the length of time required in its elaboration renders it of little practical value.

In our present state of knowledge, therefore, we must turn to the general practitioner, whose successful orientation of the disease among the acute infections prepares him for the earliest possible recognition of the disease and so offers the patient the best that our present-day knowledge provides in the way of treatment.

In discussing treatment, let it be at once understood that this is non-specific, and because so, may vary greatly, according to the ingenuity and resourcefulness of the physician; but it is gratifying at least to learn that a common note is struck by all contributors to the Newcastle discussion, in their insistence upon the necessity of absolute rest during the first few weeks of illness. The one exception to these views will be referred to again.

In order to apply our knowledge of the disease to appropriate treatment, it is necessary that we grasp the essentials of the pathological processes going on in the brain and cord. It has been and is still to some extent a common belief that the seat of the infection is in the anterior cornua and in the cells of this region, and there alone; but as Dr. Buzzard shows, the whole nervous system from the hemispheres to the peripheral nerve roots offers fertile soil to the ravages of the infective virus. Yet, judging from clinical observation, alone, the manifestations are those of damaged or destroyed anterior horn cells, and on this region, particularly, our attention must be focused.

A mental picture of the pathological processes operating in this region of the cord shows a group of cells in varying stages of vitality, gradually being destroyed by the surrounding oedema, vascular swelling and congestion, cellular exudation, and in some cases focal hæmorrhage, and it is not difficult to realize that many of these cells will die. A number of others will recover sufficiently to



take up at least, partially, their function, while others may escape entirely from the ill effects of the injury they received.

Such a picture materially aids us in the management of the patient, for in the absence of any known agency that will affect this process, we must direct our efforts towards the rational management of the muscles controlled by the affected cells.

The first essential of treatment is rest, not simply putting the patient to bed and telling the friends or nurse that the child must rest, but directing that rest which must be absolute, towards the individual muscles.

Rest of muscle is not possible except under proper postural relaxation, and so posture becomes a necessary adjunct of rest. Here again no specific rules can be laid down, but if the principle of relaxation of the affected muscle is understood, close and intelligent observation during the first few days or weeks of the disease will enable us to adopt rational measures and to place the limb in such position as to avert tension or dragging upon the muscles showing evidence of failure.

In the opinion of Dr. Elmslie, this position is best maintained by use of plaster-of-paris splints or a plaster bed, while others believe that a box splint is sufficiently stable to insure complete rest; but this is obviously a question for the individual surgeon, so long as the essential principle is adhered to throughout the early weeks of the illness.

After the first few weeks many of the damaged cells will show evidence of regeneration, and for weeks and months following other cells will gradually regain function. As we have no means by which this regenerative process can be hastened, our energies must be directed toward the nutritional maintenance of the muscle so that functional repair of the neuron will link up with a muscle capable of contracting and thus permit restoration of a functionally intact neuro-muscular unit.

Muscle nutrition is best maintained by contraction of the muscle fibrils, and for this purpose, after the period of rest and in the absence of voluntary active contractions, we must resort to mechanical means.

Of these the galvanic current, with its make-and-break contractions, is our most rational aid. Electric stimulation is at best a poor substitute for voluntary stimulus, but with this stimulus we can induce contractions which, with their attendant chemical and circulatory changes, tend to

maintain the muscle in the best possible state of nutrition, pending the return of functional activity in the cell and axis-cylinder.

Care must be taken in the application of the current. This is best done by treating each muscle individually, with both electrodes overlying the muscle and with just sufficient current to induce contraction. Otherwise, spread of the current to other muscles, particularly the antagonistic group, may do more harm than good by stretching the paralysed muscle which we hoped only to stimulate to the point of contraction.

The faradic current is undesirable, and by inducing fatigue may do positive harm if used in the earlier stages of the regeneration.

Effective faradic response depends upon an intact neuron and neuro-muscular mechanism, and, in the writer's experience, voluntary contraction practically always precedes the return of faradic response, so that it is difficult to ascribe to faradism any practical value as a stimulant to muscle contraction, for by the time regeneration has advanced to a stage sufficient to permit of faradic excitability, we have at our command the much more natural and effective stimulant of volition.

The only role that faradic stimulation can play is that of an aid or substitute for the already present but necessarily weak voluntary stimulus, and, as such, should be used sparingly in order not to tire the recovering neuro-muscular mechanism.

In our present state of knowledge we are not justified in conceding to electricity any other role than that of a stimulant to contraction, and as such we can conceive only of an efferent stimulus acting on the neuron and contractile element in the muscle, but if we consider the neuro-muscular mechanism as a unit, we must realize that not only efferent but afferent stimuli from muscle to cell are operating in the maintenance of the normal physiological activity of the unit. It is, then, apparent that no form of artificial stimulation can be regarded as a worthy substitute for voluntary movement and voluntary exercise which should now constitute our chief agent in the restoration of full functional activity. The use of electrically charged baths or the blind dissemination of electricity throughout the body is to be deprecated and here, in passing, we must consider the views of Dr. F. H. Humphries, who is, apparently, an ardent advocate of electricity in all its forms. As soon as the diagnosis is made, Dr. Humphries would begin active electrical treatment in the form of high frequency or condenser

shocks, applied throughout the length of the spinal cord, which he believes lessens the congestion in the cord and relieves the affected cells of pressure. This he would follow up with static electricity, also applied over the spinal cord region, with an apparent disregard for rest and postural immobilization.

Dr. Humphries' plea for the generalized use of lights, condenser shocks and static electricity, is set in the most optimistic tone and offers a fitting sequel to his introductory remarks "that permanent paralyses should be an uncommon result" and, quoting from the teachings of electrotherapeutists, "by a proper appreciation of the available mechanical agencies we need rarely, if ever, encounter any paralytic deformity."

Without wishing to enter into a critical discussion of the views propounded by Dr. Humphries, we must feel that such statements, as quoted above, serve one timely purpose in indicating the wide flung fields of imagination, into which one may be led by the compelling force of his own optimism. In all nerve regenerative processes, whether necessitated by sudden trauma or the prolonged ravages of disease, we can see only one indication for the use of electricity and that is the inducement of contraction in the maintenance of muscle nutrition. Light massage and warmth to the limb are necessary adjuncts to rest, posture and galvanism in the maintenance of this muscle nutrition.

Much has been hoped for and expected in the treatment of this disease by the use of appropriate

sera, and to this end some encouragement is derived from the report of Rosenow on the use of his immune horse serum (*J.A.M.A.*, 77, 588, August 20, 1921). The serum is prepared from the repeated injection of the pleomorphic streptococcus isolated by Rosenow, and is administered intravenously, by preference.

Rosenow reports from a series of 259 cases, half of which number consists of cases treated by physicians to whom the serum was sent.

Of the 259 cases, 19 died, a mortality of 7.3 per cent.; and if moribund cases and those whose condition was beyond hope of improvement when the serum was given were not considered in the statistics, his mortality rate drops to 3.2 per cent. In comparison, 72 untreated cases, at about the same time and locality, showed a mortality rate of 36 per cent., while that of the New York City epidemic in 1916 is estimated at 16 to 25 per cent.

Again, in cases treated early and before paralysis appeared, the diagnosis being based on the general infective process with spinal fluid examination, increased cell and globulin content; only one case developed paralysis. Of those cases showing well-marked paralysis and treated early after the onset, 37 showed residual paralysis, or 21 per cent., while residual paralysis in the New York City epidemic was 64 per cent.

These are striking figures and, should this serum prove nearly as effective in the hands of the general profession as it has under the direction of the author, the necessity of the early diagnosis and treatment of poliomyelitis is apparent.

#### **Tuberculous Infection and Tuberculous**

**Disease.**—Hamburger (*Wien. klin. Woch.*, September, 1921) states that the discovery of droplet infection by Flügge is the most important advance in infectious disease since the classical work of Pasteur and Koch. Infection takes place by coughing, speaking, and in the case of tuberculosis, only within the ordinary distance for conversation (1 to 1½ metres). There is no evidence that infection takes place in man by inhalation of dust. Everything, on the other hand, points to direct infection from man to man. Compared with tuberculous infection tuberculous disease is comparatively uncommon, though it is impossible to determine at present the relative frequency. Hamburger states that a short time ago his son, aged 13 years, devel-

oped phlyctenular conjunctivitis, which healed in about a fortnight, the general condition being unaffected. As Hamburger had been in the habit for many years of testing his children with tuberculin every six months, and the boy had always given a negative reaction before, the eye disease, which was accompanied by a positive reaction, could undoubtedly be attributed to a recent tuberculous infection. As the other four children still gave a negative reaction it was pretty certain that the infection was derived from some person outside the family. Hamburger therefore recommends that in combating tuberculosis special attention should be paid to prophylaxis against extrafamilial exposure to infection.



## Foreign Hospitals

### MEDICAL STUDIES AT PARIS

G. R. D. FARMER, M.B.

**M**EDICAL practitioners in Canada, especially those contemplating a trip to Europe, may be interested in the following notes of a recent visit to the medical schools in Paris.

For general medicine the three great schools are those of Prof. Gilbert at the Hôtel-Dieu, Prof. Chauffard at the Hôpital St. Antoine, and of Prof. Vidal at the Hôpital Cochin. The method of instruction is essentially the same in each of these, often each school has its own theories regarding a given subject, and these receive special attention whenever this subject is brought into consideration. The instruction at Prof. Vidal's clinic might be taken as an example of the methods employed in France at the present time.

It may be well at the outset to mention the fact that French students receive instruction in clinical work in every year of their course. It is to be expected that a great deal of what they encounter in their early years is difficult for them to assimilate, but it is hoped that continuous contact with these points through the whole of their undergraduate career will lead to more perfect knowledge of them in the end. The students are divided into three classes, called respectively *internes*, *externes*, and *stagiaires*. The latter constitute the greater part of the student body and have to pass competitive examinations in order to proceed to the higher grades. These examinations are apart from those held in connection with passing from one year to another. The *stage* followed by a student at one of the clinics consists of about four months' continuous service.

In the medical clinic at the Hôpital Cochin, with the exception of Sundays, Tuesdays, and national holidays, there is a lesson at 9 o'clock every morning. Every Tuesday at 11 a.m. the Professor gives a special lecture in the amphitheatre on whatever research work may be engaging his attention at the time. These Tuesday morning lessons form a series apart and are attended by a very large number of medical men. The

ordinary 9 o'clock lesson takes the form of a lecture in the amphitheatre by one of the Professor's assistants. The list of subjects is posted every week and includes as a rule fairly elementary subjects such as "sore throat," "blood pressure," or "hemiplegia," but difficult problems are frequently treated, and very thoroughly too.

The lecture lasts for one hour, at the conclusion of which everyone repairs to the wards, where another hour is spent in illustrating the points which have just been considered, and in doing ordinary work in connection with the cases. At eleven o'clock the Professor himself arrives with great regularity. Nothing but very extraordinary circumstances prevent his appearance. During the holidays, and in the absence of the Professor, his place is taken by his ablest assistants, such as MM. Abrami and Brulé, who even rival their master in brilliancy. This conference takes place in one of the wards, or more rarely in the amphitheatre. One of the more interesting cases is chosen and placed at one end of the ward, the Professor sitting at the patient's bedside, facing the assembly, which consists of the students in his service at the time and also of medical men from all parts of the world. The *stagiaires* to whom the case had been assigned are situated at the bedside, opposite the Professor. The *externe* reads the complete history of the patient. The *interne* then tells all he knows about the case and discusses the differential diagnosis. Then in his turn the physician in charge of the ward from which the patient was chosen spends five or ten minutes discussing the diagnosis, giving his reasons for discarding certain hypotheses and for retaining others. Up until this time the Professor has been listening to what is being said, comparing this with the patient's condition at the time, and throwing in a question now and then so that the performance takes rather the character of a debate. Having finally satisfied himself as to what is the matter, he calls upon the *stagiaires* for their opinion. "What is there in the history

of this patient which has particularly struck you?" is the way of opening his conversation with them. Proceedings up to this point have probably occupied about half an hour, and for the remaining half hour the Professor holds forth on all the possibilities to be considered in connection with the case, and the latest work and theories associated with them. There is always a great wealth of material in this hospital, and a few months' attendance at these conferences are of great interest and value. One is able to see in succession almost every type of disease; at the conclusion of each lesson one is at liberty to interrogate the patient and to examine the case thoroughly.

Those who desire to give their attention to some special branch of work have ample opportunity for investigating French methods. Paris has long been renowned as a neurological centre, and the clinic made famous by Charcot at the Salpêtrière in the last century is at present most ably conducted by Prof. Pierre Marie. Dr. Babinski's service at the Hôpital de la Pitié is also much frequented by neurologists; at the same hospital Prof. Vaquez conducts his admirable service for diseases of the heart. Chest conditions can be studied to the most advantage with Prof. Sergeant at the Hôpital Laennec and at the Hôpital de la Charité; gastro-enterology at the Hôtel-Dieu. It is almost superfluous to mention the old Hôpital Saint-Louis and its famous clinic for dermatology and the venereal diseases. Specialists

in diseases of children will find Prof. Marfan at the Hospice des Enfants Assistés a charming and very valuable teacher.

The afternoons may profitably be spent in the rooms of the Faculty, where various courses of lectures are always going on. The instruction which I have just outlined is open to all doctors. One must first register; the card thus obtained allows access to the library, the morgue, etc., and is often very handy, especially in Paris, where cards of identification are often indispensable. At all the clinics post-graduate courses are given from time to time. These are known as "cours de perfectionnement." They are essentially practical, usually last two or three weeks and cost one or two hundred francs each. The courses are very good but there is a tendency to overcrowding at certain seasons.

In obstetrics and surgery the same system is followed as a rule. The work of the Pasteur Institute and Hospital is too vast to be approached in this article.

Life at Paris is very pleasant and not at all expensive if one is content to live in modest quarters. With practice one soon becomes sufficiently familiar with the language. I considered that it added interest to the work, as there is a double stimulus to one's attention. After a month or so one is quite at home in it. French hospitality is well enough known to need no recommendation, and the Honourable Philippe Roy, Canadian Commissioner at Paris, spares no pains for the comfort of visitors from this country.

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**Arsenical Conjunctivitis.**—Milian (Paris Med., October 15, 1921) states that all arsenical preparations are vaso-dilators, and are liable to give rise to conjunctivitis. It is particularly frequent after organic compounds, such as atoxyl, hectine, galyol, and the arseno-benzols. Previous affections of the conjunctiva, such as are caused by mustard gas poisoning, hay fever, and ciliary blepharitis, favour its appearance. Arsenical conjunctivitis is merely a paralytic dilatation of the conjunctival capillaries. The conjunctivitis, which is more or less marked according to the form and intensity of the intoxication, may assume a localized or a general form. In the localized form, which is the most frequent, there is more or less pronounced congestion of the lower and outer

quadrant of the conjunctiva, the lesions being bilateral and symmetrical. The free border of the lower lid and the lower conjunctival cul-de-sac are also slightly congested. The congestion is not accompanied by discharges of serum or pus, but occasionally there is an excess of lachrymal secretion. In the generalized form the whole conjunctiva is involved, the lids are stuck together, and there is chemosis. In spite of the intensity of the symptoms the inflammation subsides completely within one to four weeks. Treatment consists in instillation of one or two drops of adrenaline (1 in 10,000) morning and evening, associated with a collyrium of zinc sulphate (1 in 10), and a boracic spray three times a day.—Brit. Med. Jour., December 10, 1921.



## Editorial

### A SKETCH OF RENAL DIAGNOSTIC METHODS

SINCE the days of Bright the presence of albumin in the urine has been held to denote the presence of kidney disease. That this is not always so, does not detract from this long-tried diagnostic sign, though the differentiation of various types, built upon the varying amounts of albumin and its accompaniment by different sorts of formed elements, has long been proved fallacious.

With the advent of the new chemistry, a new turn altogether has been given to the study of diseases of the kidney, and though these methods have greatly clarified our understanding of many of the problems concerning the relation of the kidney to the metabolism of the body, we are reminded by a quotation from Theodore Janeway made in 1916 that this knowledge brings us no whit nearer the understanding of the real cause of nephritis, and until a clue is obtained of the etiology, all treatment of renal disease is empirical, and consists rather in managing the patient than in curing his disease. But that this "empiricism" has by accurate chemical determination been made more "rational," in the words of Professor Rudolf, no one can deny.

What the barium meal is to gastrointestinal diagnosis, and what the electrocardiogram is to heart disease, the various renal efficiency tests are to renal disease; and as the other two have very abrupt limitations in what they can reveal, as well as an undoubted capacity for concealment, so methods of testing renal efficiency have not the power to clear up all problems in kidney disease, and may, when removed from their clinical setting, even dangerously distort the picture; and it may also be safely stated that of all the tests employed, there is not one which, used independently of the others, can be relied upon to give a satisfactory revelation of

the general fitness of the kidney as functioning unit.

It may be of service to briefly summarize the methods most commonly in use with a word as to some of their salient features. The renal test meal, as modified by Mosenthal, consists in the administration of a daily mixed diet approximating that of the average individual given at set hours, *e.g.*, 8, 12 and 5. The diet contains a known quantity of nitrogen and of salt and of water, and the urine is collected during two-hour periods throughout the day, and the night urine from 8 p.m. to 8 a.m. collected as one specimen, no fluid having been given after 6 p.m. The quantity and specific gravity should be in inverse proportion and a difference of 9 points should appear between the highest and lowest readings. The total night urine should not exceed 400 c.c. The salt and urea output should approximate the intake and the water output in 24 hours should be within 400 c.c. of the intake.

The essential features of this test may be carried out in any household, all the requisites being three meals at set hours with a measured quantity of fluid, *e.g.*, 1500 c.c., seven containers for the separate urines, a measuring glass and a specific gravity bulb. A drawback is the interference with the test from gastric disturbance, so common in nephritis. Tests of dye excretion as phenolsulphonephthalein, of which .06 gm. is injected intramuscularly after the bladder is emptied and the urine collected for two hours, rendered alkaline and diluted to 1000 c.c., and matched in colour in a colorimeter. Normally 60 per cent. of the dye should be recovered.

In the absence of a colorimeter, an equal amount of the dye may be dissolved in another 1000 c.c. of water and

the two solutions compared in test tubes of equal calibre, then if 10 c.c. of the known solution requires dilution to 25 c.c. to equal the colour of the unknown, then  $10 \div 25 \times 100 = 40$  per cent., or the percentage in the unknown specimen.

The drawbacks of the dye test are that it is not practicable in urines containing pus or blood, and it is stated by Hugh McLean that there is a high percentage of error even up to 20 or 30 per cent., but this is not the impression of those who use it most.

The urea concentration test, in which 15 gm. of urea is given by the mouth and the urine of the following two hours examined. This should show at least two per cent. of urea from a normal kidney. The criticism has been made that since this amount of urea roughly duplicates the ordinary alimentary nitrogen, that a finding of 1 per cent. without the ingested urea would have the same significance. It is also stated that the urea is not uniformly absorbed and thus a fallacy arises.

The coefficient of Ambard, modified by McLean is as follows: The blood urea is estimated in the middle of a period during which the urinary urea is also estimated and the relation between these two stated in relation to a normal. At present

this does not seem to offer any information not also acquired by other methods.

The examination of the blood for urea, uric acid and creatinin is now practically indispensable in the estimation of kidney function, the disadvantage however is the difficulty of obtaining accurate readings without special laboratory facilities. Though urea retention is not the cause of uræmia, it is a sign of relative impermeability of the kidney, for though a poor kidney and a good kidney must on a similar diet excrete an equal quantity of urea, the poor kidney will only do its work under a higher "head" or concentration of the substance in the blood. Other conditions such as septic peritonitis and intestinal obstruction show a high blood urea for which the kidney cannot be blamed.

It is generally conceded that a high creatinin content is of much value in prognosis—above 5 mg. per 100 c.c. being practically of lethal significance; but by the time this figure is reached the observant clinician has also read elsewhere the signs of approaching death, and he is the wise physician who after gathering all the information which the laboratory affords does not overlook that which the patient alone can furnish.

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## ON THE VALUE OF DRUGS IN AFFECTIONS OF THE URINARY TRACT

WITH perhaps the exception of the stomach and intestinal tract, no system in the body is more susceptible to the action of our drugs for good or for ill than is the urinary tract. It is the natural pathway for the elimination of all substances which in any way interfere with the normal constitution of the blood. In the elimination of irritating materials (and many of our drugs are irritants) definite damage may be done to the renal cells. Cells that have previously been damaged under the wear and tear of life

are particularly liable to be affected. These facts are known to all, but are sometimes forgotten. Christian of Harvard has by careful experimentation also shown how damage may be done by the administration of even the simpler diuretics such as the potassium salts in acute and subacute forms of nephritis. We may add that for the treatment of all forms of infection in the urinary passages no antiseptics have yet been introduced to the profession which in large doses may not induce, when given internally, signs



of definite irritation in the renal epithelium. While the Hippocratic maxim "Do no harm" may be tempered occasionally with the more modern adage, "Of two evils, choose the least," caution and frequent examination of the urine are always demanded when large doses of irritant drugs are administered. In a recent paper on the value of drugs in urology by Dr. Hugh H. Young of Johns Hopkins Hospital (*Jour. Amer. Med. Assoc.*, October 22, 1921) the writer discusses the value of the pharmacological armamentarium at the disposal of the urological surgeon. The empiricism of the past has handed down a large number of drugs, the majority of which have little scientific foundation for their therapeutic usage. Dr. Young in order to arrive at some basis for the determination of the value of these drugs in diseases of the urinary tract, made out a list of eighty drugs, including indiscriminately those introduced into the system by the mouth or by deep injections and those used locally, and then forwarded the list to thirty of the best known urologists in America with a request that they signify those which they deemed of most value. Only eighteen drugs received the approval of fifty per cent. of these specialists; and of these, eighteen, hexamethylenamine stood first in the list, although Young states that as usually given it is almost inert. Recent experiments by Burnam and Hamman are said to have shown that unless the urine is quite acid, formaldehyde is not liberated in the kidney in sufficient quantity to be germicidal or even inhibitory. During its administration the urine should not be too dilute, and acidifiers such as acid sodium phosphate and sodium benzoate to the extent of 40 grains daily should be taken, but not at the same hour as the hexamethylenamine, which latter according to Young, must be given in large doses (60 to 90 grains daily) to obtain results of value. Its chief value is to prevent instrumental infection of the bladder. While such large doses may have value, and perhaps may be given in some instances without disturbance of digestion and without irritation of the renal cells, we are convinced that in a

large percentage of patients signs of irritation will ensue, and will demand careful watching. Smaller doses have not in our hands proved inert. Experiments are at present being carried on to determine the value of many of the aniline dyes as urinary antiseptics for internal administration. Several of them have given excellent results with almost no renal irritation in animals, but prolonged clinical testing is required before definite statements can be made.

Several of the eighteen drugs which obtained the approval of the urologists are suitable only for local employment. Dr. Young considers that potassium permanganate and argyrol, drugs which stand high in the approved list, have been shown experimentally to be very weak antiseptics, and he refers the value attributed to them to the fact that they produce little reaction and irritation. In reference to the local use of antiseptics and germicides in the urinary tract, Young states that it is still by no means clear how much of the favourable action of a drug is due to its germicidal or antiseptic action, and how much to cleansing effects or to stimulation of tissue reactions. Many powerful germicides have been used in the urinary tract, but no uniform success has attended any of them. It seems probable that this is largely due to the depths to which the inflammation often extends into the deeper tissues. Young considers, however that there is little doubt that as our selection of suitable drugs increases, more and more cases will respond to germicidal applications. There is unquestionably a great future for germicidal treatment in venereal prophylaxis, in acute gonorrhoea, and in other infections of the urinary tract.

Discussing the relative value of the various sedatives and antispasmodics for the relief of pain and spasm in the ureter, bladder and urethra, Young after referring to the general use of opiates, especially of morphin and codein in conjunction with belladonna and hyoscyamus, quotes the results of Macht's experiments. Macht has shown that while morphin and codein relieve ureteral and vesical colic through their action on the pain centres

of the brain, their effect on the contraction and tonicity of the ureters and bladder is stimulating. Papaverin, on the other hand, while not a powerful central analgesic, exerts a remarkable relaxing or antispasmodic effect on smooth muscle. To obtain this action in a full degree a solution of papaverin has been injected by ureteral catheter to facilitate the passage of a ureteral calculus.

A combination of the different opium alkaloids such as pantopon, contains a sufficient amount of papaverin alkaloids to counteract the stimulating peripheral effects of morphin on smooth muscle. For this reason pantopon has proved more efficient than morphin clinically in relieving colicky pains in general, and ureteral and vesical pains in particular. Benzyl benzoate also has proved efficient in these conditions. In subacute renal and vesical pains this drug may be given by mouth, from 2 to 4 cc. of the 20 per cent. alcoholic solution three or four times a day. Recent experiments at this clinic show that the action of the different belladonna alkaloids (atropin, hyoscyamus,

scopolamin) as antispasmodics for the bladder is not the same. The galenical preparations of hyoscyamus appear to be more sedative than those of belladonna.

Certain drugs, while not of therapeutic value, are of the utmost importance in urologic practice as diagnostic agents, and therefore must be named among the useful drugs. We need only to mention the invaluable information given by phenolsulphonephthalein regarding the functional powers of the kidney and the value of sodium bromid and thorium solutions in connection with pyelography. Radium has a wide field of usefulness in urology, as it may be applied through so many portals. The various drugs employed in the clinical and bacteriologic laboratory are also very necessary. This department of medicine when associated with reports on the chemistry of the blood, with renal function tests, and with the employment of the cystoscope and the roentgen ray, may now be regarded as one of the most exact of the medical sciences.

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### CANADIAN MEDICO-LEGAL JURISPRUDENCE

AT the last meeting of the Ontario Neuro-Psychiatric Association, held at Mimico, Dr. E. W. Ryan read a paper on "The Present-Day Aspect of Canadian Medico-Legal Jurisprudence," in which he made a strong plea for some improvement in our judicial methods. He illustrated his argument by giving the details of many important medico-legal cases in our courts in which the important point was a decision as to whether the accused was insane or not. The law at present holds that a man may be insane on one subject and sane on others. Medical science cannot assent to this opinion.

Dr. Ryan made the suggestion that there should be a medical commission of recognized psychiatrists appointed in all mental cases to investigate each calmly

and lay the results before the Attorney-General, the judge and the jury. The idea is not a new one. In Germany and Australia when a person under indictment pleads insanity, he is sent to a psychiatric clinic or mental hospital, to be retained there until a careful study of his case has been made, and it can be decided whether insanity existed at the time the act was committed. In the State of New York provision is also made for the appointment of a commission to examine an accused person as to his insanity.

Last year the Province of Quebec appointed Dr. F. E. Devlin psychiatrist to the courts. Dr. Devlin, however, has already the time-absorbing duties of Superintendent of the St. Jean de Dieu Hospital, and will find it difficult to spare



the additional time requisite to examine every person brought before the courts suspected of being insane. It would appear also to be very desirable that such an important decision should not be left in the hands of one person, be he ever so capable and skilful. The public will be better satisfied by the appointment of a commission composed of three qualified psychiatrists who should examine every person suspected by the court to be suffering from mental abnormality, and whose decision should be final. The ideal to be kept in view by such a commission should be, as Dr. Ryan says, the dignity of medicine and the majesty of justice. The legal profession should not have the right to examine a psychiatrist on a mere hypothesis. The medical profession must insist on the fact that a person cannot be insane and sane at the same time.

Psychiatry today is not merely the study of "insane" persons. It covers the much larger field of human behaviour

and the establishment of research bureaux to so many of the courts in the United States shows that at last this particular branch of medicine is beginning to take its rightful place in the community.

If the provincial governments would appoint such a commission of qualified psychiatrists and make their decision final, it would not only be more economical for the community but it would prevent the scandals that occasionally occur in these cases under the present method; and the condemning of an irresponsible man who more properly should be remanded for hospital treatment.

Hon. W. E. Raney, Attorney-General for the province of Ontario, promised the meeting that if legislation improving medico-legal jurisprudence was prepared, he would see that it was taken up at the next meeting of the legislature. If Ontario takes this step she will be the first province in Canada to do so.

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## ON THERAPEUTICAL AND PHARMACEUTICAL PROBLEMS

AT the suggestion of the Committee on Pharmacy of the Ontario Medical Association, about a page of the *Journal* in each number, during the coming year, will be devoted to short concise notes on problems connected with the prescribing and administration of drugs, and on questions of pharmacy of interest to the physician. In this page notice will be taken of any untoward effects arising from the therapeutic use of newly-introduced re-

medies, and the claims for efficiency made by some patented preparation may be discussed. The object aimed at will be the enlightenment of the practitioner on the best methods of prescribing medicines in a pleasant, safe, and effective manner. Any questions connected with the subject addressed to the *Journal* will be answered, and short contributions containing interesting and useful information will be welcomed from any member of the Association.

## Therapeutica and Pharmaceutical Items\*

**Iodides and Bromides in Mixtures.**—Very frequently the practitioner wishes to prescribe for his patients either bromides or iodides. In the case of both of these bodies he is tempted to employ the potassium rather than the sodium salt. Potassium bromide is more expensive than the sodium salt (the former \$1.10, the latter \$0.85 per pound) and has no definite pharmacological advantage. The body absorbs daily large quantities of both sodium and potassium salts with the food, and as we all know, relatively large amounts of sodium salt are always found in the blood stream and potassium salt in the tissues. The balance between these is kept accurately adjusted by the body. The amount of potassium salt that would be given is not sufficient to upset this balance. Further, the sodium salt is definitely less unpleasant and more easily covered by flavours. Extensive and careful experimentation has shown that of all pharmacopœial flavours liquid extract of liquorice (20 min. per 20 gr. of salt, with water up to 60 min.) is the best. There is absolutely no rational reason for prescribing strontium bromide, nor for giving a combination of sodium, ammonium and potassium salts.—J. DEAS, *Dept. of Pharm., U. of T.*

**Elixir Lactopeptine.**—It is a habit with many physicians to employ elixir lactopeptine as a flavouring and colouring, in spite of the fact that they are unaware of its exact composition. This proprietary preparation has been imitated in the Canadian Formulary under the name of elixir pepsini compositum. Its formula is as follows:

Pepsin . . . . .	175 gr.	10 gm.
Pancreatin . . . . .	17½ gr.	1.0 gm.
Diastase . . . . .	17½ gr.	1.0 gm.
Lactic acid . . . . .	15 min.	1.5 cc.
Hydrochloric acid . . . . .	20 min.	2.0 cc.
Glycerin . . . . .	5 fl. oz.	125 cc.
Distilled water . . . . .	10 fl. oz.	250 cc.
Tincture of cudbear . . . . .	5 fl. oz.	125 cc.
Purified talcum . . . . .	1 oz.	30 gm.

\*Under the charge of the Committee on Pharmacy, Ontario Medical Association.

Aromatic elixir, sufficient to make 40 fl. oz.  
1000 cc.

It will be seen that pepsin, pancreatin, and diastase are exhibited in the same mixture, and that an acid one, which will lead to destruction of the pancreatin and diastase by the pepsin, while the alcohol will destroy the activity of the pepsin. The ferments are quite valueless, yet they are expensive ingredients. The flavour and colour can be adequately obtained with the omission of these ferments and at a considerable reduction in cost.

The colouring principle is tincture of cudbear (tincture persionis), an excellent colouring for acid mixtures, which should be included in the British Pharmacopœia, as the pharmacopœial red colours, tinctura cocci, tinctura lavandulæ composita and tinctura cardamomi composita, lose their colour in an acid mixture.

The colour and agreeable flavour could be obtained by the following:

Hydrochloric acid . . . . .	2 drachms
Tincture of orange . . . . .	4 drachms
Tincture of cudbear . . . . .	5 fl. oz.
Alcohol . . . . .	5 fl. oz.
Syrup, . . . . .	16 fl. oz.
Water, sufficient to make . . . . .	40 fl. oz.

A physician could readily prepare this in his own pharmacy or get his pharmacist to keep for use such a flavouring mixture. It must, however, be remembered that the flavour is acid, that it should not be used with carbonatea or liquor arsenicalis, and that it will quickly destroy all glucosides, hence it must not be used with digitalis or strophanthus.—J. DEAS, *Dept. of Pharm., U. of T.*

**On Globeol.**—As the profession has recently received samples of "Globeol," a word or two in regard to its composition may be of interest. According to its literature "Globeol contains the total extract of horse blood (red corpuscles and serum). It contains the reconstituent and modifying elements of the blood in their entirety: plasma, oxidases, lipoids, antibodies, endocrins, hormones, cytopoietins and other stimulins, catalases, agglutinins, antitoxins, precipitins, etc."



In addition, it contains the active principle of the seeds of *Paullinia sorbilis*, and "lastly, the bitter extract of the *Picrana excelsa*, a powerful tonic agent, stimulates the gastric and biliary secretions, increases intestinal contractions, thereby checking constipation."

The physician often requires to administer iron, which is undoubtedly of great benefit in chlorosis, and possibly in secondary anæmia. There is no great reason to believe that organic iron is in the least better than inorganic iron. Each of these pills, weighs 3.7 grains, without its white covering, 1.85 grains. If it consisted entirely of blood, this amount would contain 0.005 grains of iron. One five-grain official Bland pill contains 0.55 grains of iron, a much more reasonable amount to administer.

*Paullinia sorbilis* is a plant from the seeds of which guarana is obtained. Its important constituent is caffeine. A test showed the presence of caffeine in the pills.

In *Picrana excelsa* most practitioners will fail to recognize our well-known friend quassia, a useful bitter, but whose action, save such reflex effects as it produces from the mouth owing to its bitter flavour, is nil. Its incorporation in a pill of this character is valueless.

Fortunately, for the patient, the proteins of the blood are completely destroyed in digestion, as are also the agglutinins, antitoxins, precipitins, etc., which are supposed to be the peculiar feature of this remedy.

Surely the clinician will not be deceived by the supposed quotations from French authors.—V. E. HENDERSON, *U. of T.*

#### Role and Development of Drug Therapy.—

A general survey of treatment as it exists today is made by L. G. Rowntree, Rochester, Minn. (*Jour. A. M. A.*, Oct. 1, 1921) and he considers the more important factors which have in the past, or may in the future, exercise a retarding or accelerating influence on the progress of treatment. Drugs, he says, find their most extensive application in the field of medical treatment; but, to the thinking physician, treatment no longer consists merely in giving drugs or applying other measures of relief. The essence of treatment consists in recognizing the pathologic process; in understanding its causes, the mechanism involved in its production and in the development of its clinical manifestations; in knowing the character, extent, and probable outcome of the resulting functional and morphologic changes; in valuing correctly the significance of clinical and laboratory findings; in ascertaining the indications for, in knowing the mode of action of, and in applying the most effective measures for its prevention, abortion, amelioration or cure. As medicine becomes more rational, it becomes more effective, and drugs play a relatively smaller but better defined role. The essentials of good treatment are: correct and early diagnosis; a true conception of the cause and nature of the derangement; familiarity with the manner in which the derangement can be corrected, and the

knowledge of, and ability to apply the most effective measure of relief. In the final analysis it is seen that the fundamental factors responsible for the tardiness of medical progress have been: (1) the inadequacy of science during its early period of development, to cope with the complex problems of the human organism and with the processes of life and of disease; (2) the incorrect approach to the subject, that is, the employment solely of speculation uncontrolled by observation and experimentation. The public and many physicians fail to recognize that progress comes through investigation, that practice is based on investigation, and that medical investigation means better care of the sick, greater public health and happier communities. Rowntree continues his address by taking up such topics as the evolution of science and the adoption in medicine of scientific methods; development of clinical medicine; the development of pharmacology; the relation of chemical constitution to pharmacologic action; the discovery of micro-organisms and of their relation to disease; aseptic and antiseptic surgery; specific chemotherapy; nutrition, metabolism, and the functional conception of disease. Lines of future development are indicated. A national institute of pharmacology and experimental therapeutics, Rowntree asserts, would prove of inestimable value to American medicine.—*Jour. A. M. A.*, October 1, 1921.

## Abstracts from Current Literature

### SURGERY

**Enlargement of a Spleneculus to the size of a normal Spleen after removal of a ruptured Spleen ten years previously.** ECCLES, W. McADAM and FREER, G. O. *Brit. Med. Jour.*, Oct. 1, 1921, p. 515.

ON May 24, 1910, Mr. R., aged 21, was injured while playing football. Four hours after the injury was sustained, the abdomen was opened and a ruptured spleen found. The organ was removed in toto, and weighed thirteen ounces.

September 4th, 1920, ten years after the accident, Mr. Eccles operated to cure a post-operative ventral hernia which had gradually become more and more distressing to the patient. On opening the abdomen some adhesions of omentum were found and separated. Then to the astonishment of all present a well formed normal looking spleen was seen in the usual position. Knowing the previous history the organ was fully examined and was found to have a definite pedicle in which could be felt pulsating vessels, and the shape, size, notch, colour and consistency all appeared to be those of a normal spleen. A. Ross

**Diverticulitis of Colon.** LOCKHART-MUMMERY, J. P. *Internat. Jour. Gastro-enterol.*, Aug. 1921, p. 160.

DIVERTICULITIS is not as rare a disease as has been supposed, nor is it a disease of the post mortem table, but one which, if diagnosed, can be very successfully treated.

Diverticulitis is an acquired condition, and not congenital. The diverticula themselves are not harmful; it is their tendency to retain faecal material and become ulcerated which causes trouble.

The various complications which may result are discussed in detail. Acute and chronic sepsis in the abdominal cavity, perforation onto the skin or into the abdomen or into the bladder, and secondary carcinoma are discussed.

The differential diagnosis, especially from inoperable cancer of the colon is described at some length. The value of x-ray examination, more particularly after clearing the bowel of the contained barium, so as to enable the injected pouches to be seen, is described and its value discussed.

The various operative measures which can be used to treat diverticulitis are described and their relative value discussed. A. T. BAZIN

**Occult Blood in Stools.** ABRAHAM, ADOLPHE. *Internat. Jour. Gastro-enterol.*, Aug. 1921, p. 144

IN many respects the identification of occult blood in stools, is the most important diagnostic feature in some gastro-intestinal diseases, because frequently the differential diagnosis between functional and organic troubles may depend upon a simple chemical test of stools revealing the presence of occult blood.

Occult blood represents only blood coming from the upper alimentary tract and its interest lies chiefly in its relation to gastric or duodenal ulcer and carcinoma. An haemoglobin free diet should be followed for several days preceding the examination of the stools. The complete elimination of all possible sources of haemorrhage is a matter of some difficulty. Very small quantities of blood, such as could result from abrasions following the use of

the stomach tube or hard tooth brushes are negligible for clinical purposes. Experiments made by the author show that at least one c.c. of blood taken at one time is necessary to obtain a reaction.

The tests best suited for general use, are the guaiacum and the benzidin tests. The author uses and advises this modified benzidin test: Four drops of solution of benzidin are placed in a tiny porcelain beaker; to this one drop of the fecal emulsion is added by another pipette and one drop of hydrogen peroxide by a third. In this manner fresh pipettes can be employed for every emulsion tested and the risk of contamination is abolished.

In testing the stools it is advisable to use first the more crude guaiacum reaction, followed, when negative, by the more sensitive benzidin test. A negative benzidin reaction may be taken as absolutely conclusive proof of the absence of blood. Tests more sensitive than the benzidin should not be employed for clinical purposes, as the benzidin is sensitive in the dilution of 1 to 300,000. The reaction should provoke a decided element of blue in the coloration. Iron and green vegetables are best omitted from the dietary of the patient under investigation. Bismuth has no effect on the reaction.

The interpretations of results are sometimes difficult and absence of occult blood is not always proof that no ulcer or cancer is present. The reaction is valuable, if repeated at frequent intervals and taken in conjunction with the other elements that must lead the physician in making a diagnosis. A. T. BAZIN

**Medical Treatment of Gastro-duodenal Ulcer.** McCASKY, G. W. *Internat. Jour. of Gastro-enterology*, Aug. 1921, p. 180.

SIMPLE gastro-duodenal ulcer is primarily a medical and not a surgical disease.

The most favourable conditions for continuous repair, twenty-four hours each day, with full nutrition and suitable local medication, can be secured by the duodenal tube. Milk and cream, reinforced by melted butter, and given per os hourly for twelve hours, followed by twelve hours' rest, with the required alkaline treatment, is the next best method and will successfully meet the needs of most cases.

Recurrence is not probable if original causes, such as infections, bad dietetic habits, etc., are removed. Whether or not a recurrence is to be treated surgically should not be decided by the mere fact of recurrence. The character and duration of the original treatment, the evidence of complete healing, and especially the subsequent management of the case dietetically and otherwise are essential factors in the final judgment. Surgery might sometimes be preferable, because of the impossibility of removing casual factors. Extreme indurations, especially if obstructive in character and which are proven to be so by their failure to yield to correct medical treatment, require surgical measures. A. T. BAZIN

**Influence of Teeth upon Digestion.** BERGER, A. *Internat. Jour. of Gastro-Enterol.*, Aug. 1921, p. 188.

FROM a phylogenetic standpoint the teeth must be regarded as organs of digestion, although their value as real factors in the actual digestion has not only been un-



derestimated, but even questioned. Mastication considered alone is a purely mechanical division of food into small particles, the smaller these particles the better, because they can be attacked more easily and completely by the digestive juices which have to convert the ingested food into assimilable substances. Insalivation of the food during mastication is important from a chemical and mechanical point of view.

Although life is possible even after the loss of all teeth and therefore, without the benefits of mastication, health cannot be considered perfect under the circumstances. Many cases of indigestion have been cured after the masticatory apparatus, which in normal conditions is perfectly built and balanced mechanically and physiologically, has been restored to proper function.

The teeth, their investing tissues and contiguous structures are influenced by the general condition of the individual; they influence the whole system and are in their turn influenced by systemic pathological conditions.

Undoubtedly the eradication of septic conditions of the mouth has often been followed by the most gratifying results in cases of chronic appendicitis, cholecystitis, gastric and duodenal ulcers, etc. The great fallacy lies, however, in the dissemination of and the insistence upon the claim that oral foci of infection and oral sepsis play a predominant part in the causation of these diseases.

The sources of oral sepsis can be divided into three groups: First group includes general filthy and neglected condition of the mouth; poor fillings, ill fitting bridges, crowns and dentures; carious teeth. Second group includes all conditions known under the term pyorrhea alveolaris. Third group includes the pulpless or devitalized teeth.

It is evident that the sources of sepsis of the two first groups must be eliminated in all cases, because they are really the cause and often also the effect of general systemic disease. The question of preservation of the pulpless tooth is a very important one. They may become a source of sepsis, but their useful preservation is to be recommended, because it can be accomplished with perfect safety and satisfaction to the patient and therefore the summary removal of pulpless teeth, as a potential source of sepsis, has to be condemned.

A. T. BAZIN

#### Four Cases of Malignant Tumours of Branchial Origin (Quatre cas de branchiomes malins). Lenormant, Ch. Jour. de Chir., October, 1921, vol. 18, page 358.

THE above author reports four cases of malignant tumours of the neck of branchial origin. In his introductory remarks he states that malignant tumours of the neck of branchial origin are not so rare as noted in the classic works. In 1907 Siegel collected 79 cases from the literature. During the last two years Siegel found six additional unreported cases and the author during a similar period has operated upon four. Of the four latter cases, all of which were studied histologically, 3 presented habitual evolution, i.e., stony hardness, markedly irregular in outline, situated deep in the carotid and carotid-submaxillary region, invading rapidly the neighbouring structures with all the characteristics of a solid malignant neoplasm. In the fourth there was a transformation of a pre-existing branchial cyst which took on malignant growth previous to operation. Its removal was followed in a few weeks by recurrence of tumour which was rapidly growing and solid. This latter type of case is most rare. Most branchiomata are mixed tumours.

The cases reported follow:

CASE 1.—Man æt. 58. Tumour size of a small egg on the left side of neck, apparently cystic and seemed to be connected with the left lobe of the thyroid so diagnosis of cystic goitre was made. Operation on February 24, 1919.

Collar incision, but it was necessary to section the sternomastoid on account of tumour being adherent to deep structures. Cyst was independent of thyroid and its enucleation was very difficult. In removing it it was accidentally opened and serous fluid exuded and numerous vegetations were seen on inner wall. Five weeks later he came back with recurrence. At this time the whole left side of neck from clavicle to angle of jaw was a diffuse hard, irregular tumour mass apparently infiltrating all the deep structures. There was considerable pain and loss of weight.

Second operation April 4, 1919. Resection of tumour mass, it also being necessary to sacrifice internal jugular and subclavian veins. In addition all the muscles in this region were excised. Operation wound did not heal and patient died on June 20, 1919. The tumour was of the mixed type on first removal, containing both epithelial and meso-dermic elements, cartilage cells being noted in the wall. On removal at second operation the tumour was sarcomatous in nature.

CASE 2.—Man æt. 55. Tumour of some months' standing, size of an egg, on right side of neck extending from mid-neck to parotid, was hard, irregular in outline and surface and adherent to deep structures. Operation February 13, 1920. Wide resection. Seen April 20, 1920. Recurrence in lower area of scar.

CASE 3.—Man æt. 60. Tumour of right submaxillary-carotid region. Size of one's fist, hard, irregular and adherent to deep structures. There were general signs such as loss of weight, etc. Operation December 4, 1920. Wide resection. Recurrence in February, 1921.

CASE 4.—Man æt. 61. Tumour in left cervical region, size of egg, of extreme hardness, adherent to sternomastoid which covers it, also to deep structures. Operation June 30, 1921. Wide resection of tumour, muscles and internal jugular. Seen again in July, 1921, in satisfactory condition without any sign of recurrence.

The author cites various opinions. Veau says "The diagnosis of branchial epithelioma is probable when there is a malignant tumour in the carotid region having all the characteristics of secondary glandular cancer and where one is unable to find the original neoplasm." The author prefers to make his diagnosis by exclusion. The tumour is unique; its volume, its irregularity, its adherence and early fixing, the rapid manner with which it infiltrates surrounding tissues forming a circumscribed indurated mass, such as is seen in cancer of breast or parotid. Lympho-sarcoma is much more rapid, almost inflammatory in appearance, with enormous embossment and even fluctuating redness of the skin. In addition fever is present, which is not noted in branchioma. Tumours of the carotid body are rare and the author has never seen one, but they are regular in outline and well limited, of soft elastic consistency and the presence of transmitted impulse and bruit is noted. The course is benign and they do not invade the surrounding tissues.

The following principles are laid down regarding treatment:

- 1.—It is necessary to have good wide exposure and proper skin flap.
2. Sacrifice muscles and internal jugular vein if involved in the slightest degree.
3. Conserve arterial route if possible.
4. Save main trunks of nerves if possible, particularly the vagus.
5. Enucleate progressively from below upwards and from behind forwards.

The prognosis is exceedingly bad, the only hope being surgical interference.

R. B. MALCOLM

Blood Transfusion as a Therapeutic Agent in Pædiatrics.  
SPOHN, HOWARD. Arch. Pædiat., October, 1921,  
vol. 38, page 646.

THE use of a mother as donor for her child is not

unaccompanied by danger, as fatal cases of agglutination and hæmolytic are reported. In a series extending over three years, in the Toronto Sick Children's Hospital, without preliminary tests, one fatal case resulted. About 33 per cent. of mothers and infants are in different groups (Unger). It is true that only about 13 per cent. of infants possess agglutinins in their blood, and in only about 25 per cent. of infants may their cells be agglutinated by the serum of any group. Adults show that 97 per cent. have agglutinins, and about 50 per cent. of adults may have their cells agglutinated. The margin of safety in infants is therefore large under six months. At this time the blood group of the infant is usually established and all infants at four years are definitely grouped. The non-agglutination of the infants' cells depends on the non-existence of receptors before six months, and agglutinins are sometimes acquired first. In infants, tests should be carried out with blood of intended donor rather than a group test to be depended upon for safety.

The syringe method of Lindeman with 20 c.c. all glass syringes is the best for children, though the author uses the citrate method also. He claims that the latter produces more chills and reactions. These are due, in part at least, to the alteration in the platelets in the citrate procedure. When these are removed fewer chills occur. Toxins are said to develop in three minutes in blood that stands. The angio-neurotic oedemas, as sudden oedema of the larynx immediately after transfusion, is said not to occur in the direct method of blood transfusion. The use of the Lindeman method in infants as described necessitates dissection of a vein. The amount advocated for infants is easily determined. It is considered that the total blood volume in an infant averages 14.7 per cent. of the body weight. In fatal hæmorrhages at least one-quarter to one-half of the total volume is lost. If then the blood content is 147 c.c. per kilogram of weight, transfusion need not exceed at any time 70 c.c. per kilogram. An average rule is to give 15 c.c. per pound weight of the child or infant.

Signs of hypertransfusion are cough, increased respiratory rate, quick thready pulse, and in older patients precordial pain, backache, and pain in the legs. In hæmorrhage neonatorum, 30 to 50 c.c. of blood is enough. The author's conclusions as regards the general indications for transfusion are those usually accepted.

C. K. P. HENRY

**Study of Transfused Blood:** (a) The life of the transfused red blood corpuscle. (b) Blood destruction in pernicious anæmia. ASHBY, WINIFRED. *Jour. Exper. Med.*, August, 1921, vol. 34.

(a) The life of the transfused red blood corpuscle.—The elimination of the transfused blood is not a continuous process but takes place in more or less cyclic crises, which depend upon the cyclic activity of the body and not upon the condition of the transfused corpuscles. The physiological destruction of the red cells in animals is accomplished by specialized fixed tissue phagocytes, confined largely to the liver and spleen. In man these are few. In man fragmentation of the red cells occurs in the vessels and the fragments are filtered out by the spleen.

In healthy individuals the red corpuscles transfused are eliminated in from 33 to 100 days (8 cases). A normal person eliminated transfused blood in 28 to 30 days, and a fatal long standing infection case showed no definite sign of elimination of the transfused blood after 46 days.

The periodic drop in the count of transfused blood is accompanied by an increased marrow activity, evidenced by a total red cell increase. In women these drops are related to the menstrual cycle. In pernicious anæmia the group IV. transfused blood has remained in face of des-

truction of patient's corpuscles and even of transfused blood of the same blood group in two of the cases examined.

(b) Blood destruction in pernicious anæmia.—It is usually considered that increased blood destruction causes pernicious anæmia, not deficient blood formation. This assumption rests on (a) increased hæmosiderin, (b) increase in bile pigment output, (c) rapid falls in blood count, (d) and anæmia in face of a hyperplasia of the bone marrow. This was not confirmed by the author's results of observation in group IV blood transfusions. There is no experimental proof of the lower resistance of the pernicious anæmia corpuscle. Clark and Evans show some experimental evidence that in pernicious anæmia there is a reduction in the protective power of the serum for the corpuscles in the blood vessels against sodium oleate. Thirty-three cases of pernicious anæmia were transfused by group IV blood. In 4 pernicious anæmia cases elimination was as follows: complete, or almost so, in 91 days and in 100 days; and not complete in 100 days and in 83 days. In one case (100 days) the transfusion brought about a remission lasting for over a year.

There is no difference in pernicious anæmia in the elimination of group IV blood over that seen in the normal blood-disease-free cases, and the majority do not show any drop as great as in normal cases. The stability of transfused blood in pernicious anæmia cases is to be especially noted, and differs from the elimination in other conditions, for example, hæmolytic jaundice, aplastic anæmia, myelogenous leukaemia and secondary anæmia. Two cases showed rapid elimination of the same group blood cells and retention only of group IV blood corpuscles. Another case showed that the reverse occurred. One case showed group IV transfused blood eliminated in 2 days, and patient's own blood was unaffected. As a rule group IV blood corpuscles in pernicious anæmia are not eliminated as rapidly as in normal persons. No proof is adduced to show that group IV blood is consistently better or lasts longer than like-group blood. Clark and Evans show a marked reduction in the hæmolytic inhibitory powers of the serum of pernicious anæmia cases to a point markedly below that found in normal serum. The conclusion of the author is that blood destruction is not as important in pernicious anæmia as formerly considered. CHARLES K. P. HENRY

**Chronic Arthritis with Lamblasis. Duodenal Biliary Drainage.** LYON, B. B. V., assisted by Bartle, U. J., Ellison, R. T., and Richardson, R. *Med. Clin. North Amer.*, January, 1921, vol. 4, page 1153.

THE case report is given of a man of 59 affected with chronic arthritis. In a search for the cause of probable infection duodenal fluid was removed according to Dr. Lyons' method as described in the *American Journal of the Medical Sciences*, October, 1920.

Exfoliated and degenerated duodenal cells were removed with enormous numbers of *Lamblia* (perhaps better called *Giardia*) intestinalis, together with an unusually heavy growth of *b. coli* in pure culture. From the latter a vaccine was prepared and administered. The patient was disinclined to have arsphenamine used in the treatment of his lamblasis, so continuous biliary drainage with duodenal and jejunal disinfection was substituted (by duodenal tube). This method did not in the end prove successful in removing the lamblia from the duodenal fluid, though as a result of the combined treatment the arthritis rapidly improved.

Dr. Lyons believes that the lamblasis did not probably cause arthritis, although it may have aggravated it. He draws attention to the great possibilities of intermittent or continuous drainage of the duodeno-biliary system.

J. A. NUTTER



**Joint Range.** ROBINSON, WILLIAM H. *Jour. Orthop. Surg.*, February, 1921, vol. 3, page 41.

IN the movement of an extremity the two most important factors involved are power or amount of force present and the amplitude or range of motion. To measure power the methods of Drs. Lovett and Martin are probably the soundest, but it is with the measurement of the range of motion that the writer is concerned. An instrument of the author's invention is described and illustrated, made of metal and of the protractor type with jointed arms.

The instrument is attached above the elbow, for example, and the range of movement read off on the scale as the joint is moved. Notes are given on the visual range of joint movement, and the application thereto of the author's instrument. A number of illustrations are appended of the motion possible in various joints.

J. A. NUTTER

**Inequality of the Lower Extremities Following Fracture of the Shaft of the Femur in Children.** TRUESDELL, E. D., *Ann. Surg.*, October, 1921, vol. 74, page 498.

FIVE cases of fracture of the shaft of the femur in children, whose ages ranged from 5 to 14, are cited where shortening averaging one-half inch existed at the termination of treatment.

On subsequent examination after a period of months or years there was found in the injured bone an actual lengthening averaging over five-eighths of an inch. The growth in the injured bone occurred in fractures treated by open and by closed methods and seemed to be uninfluenced by the site of the fracture, the series including fractures of the upper, middle and lower thirds.

From these observations it is concluded that a moderate degree of shortening due to over-riding in cases of fracture of the shaft in children is of less significance than the corresponding injuries in adults, and that the possibility of post-traumatic acceleration in growth should be borne in mind before undertaking radical treatment to correct over-riding in these fractures in children.

F. J. TEES

**Non-union of Fractures in Lower Third of Tibia.** ELIASON, E. L. *Surg., Gynec. and Obstet.*, November, 1921, vol. 32, page 551.

THE high incidence of non-union in fractures of the lower third of the tibia is due to interference with the blood supply to the lower fragment.

The nutrient artery enters the upper third of the tibia and is consequently cut off in these fractures, leaving the nutrition of the lower third to be derived from the anterior tibial artery through small periosteal branches. This artery lying in an exposed position may be damaged at the time of the original injury or at a later date by methods of forcible reduction; thrombosis may occur or the circulation may be interfered with by the swelling.

Prolonged elevation may operate the same way with consequent delay in repair. Hence care must be taken to minimize trauma during manipulation and the limb should be lowered at the earliest possible moment.

F. J. TEES

**Fractures of Transverse Processes of the Lumbar Vertebrae.** DAVIS, G. G. *Surg., Gynec. and Obstet.*, September, 1921, vol. 32, page 272.

MANY cases diagnosed as "sprained back" and "malingering" are due to unrecognized fractures of the lumbar transverse processes, which are revealed by improved x-ray methods.

The symptomatology of these cases is definite; pain in the back, "backache," which is well localized, constant,

does not radiate, and increases with movement of the spine. Muscular rigidity and a point of exquisite tenderness over the fractured process are noted.

The injury is due to indirect violence and is brought about by force applied to the quadratus lumborum muscle when the thorax, spine and pelvis are fixed. The details of this mechanism are discussed.

The condition is often associated with osteoarthritis. The average age of eight patients, of whom x-rays are reproduced, was 40 years, beyond the age when separation of the secondary ossific centers would be expected.

F. J. TEES

## ANAESTHESIA

**A Study of the Anurias Occurring in Normal Animals During the Use of the General Anæsthetics.** McNIDER, WILLIAM DEB. *Jour. Pharmacol. and Exper. Therap.*, June, 1920.

McNIDER used ether, chloroform and Grehant's anæsthetic. He studied 131 normal dogs; 43 became temporarily or permanently anuric, 98 received, at some period, one or more diuretic solutions. Of the 43 he selects 9 as representative of the group.

He describes the detailed technique of the experiment and shows a masterly, careful control.

Renal tests were made with phenolsulphonephthalein and alkali reserve of the blood was determined by Marriott's method. The duration of anæsthesia was not over two and three-quarter hours in any one case. Blood pressure was taken and the urine flow noted. At the end of the first hour of anæsthesia 0.9 per cent. solution of sodium chloride or 1 per cent. solution of theobromine was given to increase or re-establish the flow of the urine.

A study of his illustrative table is very instructive.

He gives the details of the pathology of the kidneys in these experiments and reports the injury to these organs much more marked in cases of chloroform and Grehant's anæsthetic than in those of ether.

He finds that anurias in etherized animals occur late in the experiment and are associated with a fall in blood pressure without depletion of the alkali reserve; in these the use of diuretic solutions re-establishes the flow of urine. Animals anæsthetized by chloroform or Grehant's anæsthetic show early a more marked fall in blood pressure than those anæsthetized by ether. The flow of urine is more reduced than it is with ether, anuria develops earlier and all show a depletion of the alkali reserve and even if diuretic solutions raise the blood pressure, the flow of urine will not return. Anurias occurring in normal animals during an anæsthetic have been associated with either a low blood pressure or a depletion of the alkali reserve of the blood and anuria with low blood pressure and with a normal alkali reserve will be relieved by diuretics, one, however, with reduction of the alkali reserve of the blood is unaffected by such solutions.

He suggests that prior to the use of an anæsthetic, even in normal animals with normal urine and normal elimination of phenolsulphonephthalein an alkali should be employed to prevent the development of that group of anurias which is characterized by a marked reduction in the alkali reserve of the blood and which are unaffected by diuretic solutions.

WESLEY BOURNE

**Eleven Thousand Cases of Spinal Anæsthesia.** MORRISON, ARTHUR A. *Brit. Med. Jour.*, November 5, 1921, page 745.

MORRISON has done 11,000 surgical operations under stavaine in ten years.

He uses a platinum needle about  $2\frac{1}{2}$  inches long and of about the same thickness as a hydromermic needle.

The stovaine solution is made up in ampoules (furnished by Maison Clin of Paris) containing  $7\frac{1}{2}$  c.cm. To this the writer adds an ampoule containing  $\frac{1}{2}$  minim or 1 minim of liquor strychni.

He uses spinal anaesthesia for all abdominal operations, including hysterectomy, ovariectomy, appendectomy, nephrectomy, liver abscess and for thoracic operations such as empyema, thoracotomy, necrosis of ribs or clavicle.

He graduates the dose to a certain extent, according to the probable duration of the operation.

The one real disadvantage is headache. He finds that this generally occurs after minor operations and is largely due to the fact that the patients will sit up and jump about in bed. There is no headache when they keep quiet.

W. B. HOWELL

### RADIOLOGY

**Syphilis of the Lungs: Its Radiographic Findings and Their Pathologic Basis.** GOLDEN, ROSS. *Amer. Jour. Roentgenol.*, September, 1921, vol. 8, page 502.

This article treats of the incidence, pathology, radiographic findings and diagnosis of the condition, with a report of three cases, referring to the work done by Carrera and others.

Syphilitic infection of the lungs is not a common disease, but there can be little doubt that it does occur and that it is mistaken for other pulmonary diseases. It is hoped that incontrovertible histological proof may be furnished by the demonstration of the treponema pallidum in pulmonary lesions as it has been in the aorta and the brain.

Radiographically, three types are distinguished: (a) gumma with peribronchitis; (b) syphilitic fibrosis; (c) broncho-stenosis.

1.—Gumma with peribronchitis. This type varies with the progress of the disease. In the early stages the bronchial markings show small knobby enlargements due to peribronchial gummata; later these increase in size and in number, and scar formation is present showing as linear shadows radiating from the hilus or the pleura with contraction of the lung and retraction of the mediastinal contents and increasing pleural involvement. It tends to develop in the lower portion of one lung, generally the right. The shadow of the gumma is rather irregular in outline, poorly defined, and when cicatrized, radiating or stellate, and rarely, if ever, calcified.

2.—Syphilitic fibrosis. This is a rather diffuse increase in the bronchial shadows without gummatus enlargement.

3.—Broncho-stenosis. The result of stenosis of a bronchus is the collapse of the lung, followed by extreme pathological changes. There is absolute dulness involving one side with marked retraction of the heart and mediastinum to that side.

Diagnosis.—The diagnosis must depend upon the facts available from the history, physical examination and laboratory findings. The affinity of tuberculosis for the upper part of the lungs and its tendency to be bilateral are well known. Resolving or unresolved pneumonia, malignancy and massive collapse of the lung of traumatic origin may cast shadows indistinguishable from those of lung syphilis.

Summary.—The following points may be worthy of mention: Syphilis prefers the lower part of the lung, seldom involving the apex. The process is apt to be more marked around the hilus, progressing along the bronchi towards the periphery. It tends to develop unilaterally

and may destroy completely the function of one lung, involving the other comparatively little or not at all. It involves the pleura extensively and causes a marked connective tissue reaction, producing radiating or stellate scars which may be very extensive and which calcify rarely. Three general types of roentgenograms may be expected based upon the way in which the condition may develop pathologically.

The above article confirms the opinion held by the majority of radiologists associated with large hospitals, namely, that the occurrence of syphilis of the lungs is decidedly rare.

W. A. WILKINS

### The Roentgenologic Aspect of Pulmonary Metastasis.

CARMAN, RUSSELL D. *Jour. Radiol.*, October, 1921, vol. 2.

THE conclusions drawn from a study of 196 cases of pulmonary metastatic malignancy confirm those advanced in 1916 by the same author who reported seventy cases at that time, namely,

1.—Pulmonary metastatic malignancy may occur regardless of the seat of the primary focus. 2. It bears no relationship to the extent or duration of the primary disease. 3. It can be discovered in many instances only by roentgen examination; and 4. the character of the primary growth cannot be predicted from the roentgenogram.

Three types of metastases are described—nodular, miliary and infiltrative. The nodular type is characterized by the sharply outlined border of the nodule, their multiplicity and the involvement of both lungs. The miliary type exhibits showers of small, discrete areas of increased density and presents difficulties in differential diagnosis. The infiltrative type is rare. The differential diagnosis is outlined between pulmonary malignant metastasis and Hodgkins' Disease, cysts, interlobar effusions, calcium metastasis, syphilis, pulmonary abscess, miliary tuberculosis and pneumonokoniosis.

A. S. KIRKLAND

**Roentgen Ray Treatment of the Eczema Group.** EICHENLAUB, F. J. *Amer. Jour. Roentgenol.*, September, 1921, vol. 8, page 520.

THIS is a study of one hundred cases in which the chief reliance in treatment has been the x-ray, and the cases were followed sufficiently long to draw conclusions. Nine of these cases were cases of definite neuro-dermatitis with the typical clinical distribution of the lesions and in all of which a clear history of mental stress had preceded the attack. The remaining ninety-one cases ranged from small patches of dermatitis on the hands, due to external irritation, to extreme cases of generalized eczema, probably chiefly due to internal factors.

The x-ray treatment consisted in the administration of approximately one-half H. skin units every two weeks over all affected areas. The technique was 4 M.A.  $7\frac{1}{2}$  inches S.G. 9-inch focal skin distance and 35 seconds for each application. In exceptional cases slightly smaller doses were administered every ten days. The number of treatments required to clear up the condition varied greatly, and in many cases had little relation to the duration of the disease. The cause, whether internal or external, played little part in the result of treatment. In general, the results were better with x-ray treatment than by any previously known method of attack. Frequently, to test the effectiveness of treatment, only a part of the affected skin was treated with the x-ray. Ten days later the part treated was from fifty to one hundred per cent. better than the part treated by other methods.

In this series of one hundred cases, the average number of treatments per case was about three. There were two cases which did not respond at all to treatment, and two in



which there was only temporary benefit. A case is considered to be cured when objective symptoms have entirely disappeared for several months and have failed to reappear within the usual time of recurrence for that particular case when more than one attack has been present. The average time required to cure is approximately two months.

W. A. WILKINS

### MEDICINE

**Pseudotumours of the Brain.** Rows, R. G. Jour. Amer. Med. Assoc., November 19, 1921, page 1643.

Rows quotes Hughlings Jackson's and Oppenheimer's accounts of cases presenting symptoms of brain tumour, with negative findings at autopsy. In Rows' patient, an ex-soldier, was noted a combination of striking psychic, neurologic and autonomic symptoms. Among the psychic were stupor, confusion, hebeticity, acute depression, epileptic attacks.

Neurologic symptoms included difficulty of speech, tremors of arms and legs alternating with slow stiff movements, difficulty in walking, namely stumbling and crossing of the legs; altered and variable reflexes, the Babinski sign being sometimes present. Among the autonomic were diffuse oedema of the skin of the head and neck and dilatation of the vessels, with cold and blue extremities. The pupils were sluggish and unequal, the tongue was furred, and there was incontinence of urine and faeces.

The patient stated that he could not control his mind, that he had unpleasant dreams, was confused, and that incidents of the war associated with emotions of horror came vividly before his mind. Later on he described having suffered field punishment No. 1, *i.e.*, tied to wheel of a gun seven days for getting drunk.

The duration of the stuporous attacks increased, and the depression, convulsions, and other symptoms continued for several months. The psychogenic nature of the mental and physical disorders became evident, and under psychic treatment the symptoms gradually cleared up.

In discussing the diagnosis, Rows states that for a long time diagnosis was impossible. In the earlier stages the symptoms pointed to brain tumour, possibly in the frontal region, but further observation showed this to be improbable.

At the same time he maintains that there was probably some organic disturbance of the nervous system, and cites cases of pseudo-tumour cerebri in which localized oedema was found post-mortem, and experiments on dogs and rabbits in which intense vaso-motor disturbance and oedema of the spinal cord and inflammatory changes in some of the abdominal ganglia resulted from placing a culture of staphylococcus pyogenes aureus within the abdominal cavity. In the above described case he considers it possible that the combined disturbances of the sympathetic and autonomic systems and of the endocrine glands led to a slight but recoverable primary degeneration of the nervous structures, as these different systems normally react upon one another. But, he says, all the symptoms of the case, taken together, indicate an alteration in the functional activity of the whole organism.

Disturbances of the sympathetic and autonomic nervous systems and of the endocrine glands can affect the mental mechanisms, and also the organs of the body can be influenced by changes which accompany mental states. It is possible therefore that the physical changes suggested as having occurred in the central nervous system may be the result of psychic activities, and that these changes are really secondary effects and not original causes.

Repetitions of war memories associated with emotions of horror, spread over a considerable time, led to the de-

velopment of a series of conditioned reflexes so that special mechanisms were facilitated and others inhibited.

A. G. MORPHY

**Treatment of Scarlet Fever with Immune Human Serum.** WEAVER, G. H. Jour. Amer. Med. Assoc., October 29, 1921.

This method of treatment has been in use for more than twenty years; the early results were unsatisfactory, but with improvements of technique the more recent reports have been uniformly laudatory. Its use is especially advised in severe cases, and is claimed to improve the general condition, shorten the course of the fever, and greatly lessen the mortality.

The writer advocates obtaining the blood from convalescents during the fourth or early in the fifth week. The donors should be robust, free from any suspicion of tuberculosis and syphilis, and should have passed through a typical attack of scarlet fever without septic complications. The serum is separated and either used immediately or preserved with 0.3 per cent. tricresol until required. Its efficacy apparently decreases on keeping. Sixty to 90 c.c. are injected intramuscularly as early in the disease as possible, the best results being obtained when given on the second day. Intramuscular injections of citrated whole blood may be used as an alternative.

The writer reports the use of the convalescent serum in 51 toxic cases, with almost invariably beneficial results.

H. B. CUSHING

**Hemihypertrophy and Mental Defect.** GESELL, ARNOLD. Arch. Neurol. and Psychiat., October, 1921, vol. 6, page 400.

HEMIHYPERTROPHY is a unilateral enlargement of one side of the body, and is one of the rarest among developmental anomalies. A case associated with mental deficiency is described. Physical and mental measurements were made when the subject was 13 years old and repeated at the age of 20.

A comprehensive tabulation of cases to date (Table 3) shows a total of forty cases recorded in medical literature, of which nineteen were male, twenty-seven on the right side, nineteen with skin complications and five with mental defect.

A less complete tabulation of partial and crossed hypertrophies, including thirty cases, is presented for comparison in Table 4. In a discussion of the etiologic theories for hemihypertrophy, preference is given to the view that hemihypertrophy is not a hereditary character but a morphogenetic anomaly dating back to an early embryonic stage.

Hemihypertrophy is interpreted as a form of asymmetry due to a possible deviation in the normal process of twinning.

The complication of mental defect is attributed to an abnormality in the process of bilateral twinning which involves a disturbance of normal tissue development.

Possible relations of certain cases of mental defect to cranial asymmetry and intra-uterine meningitis are suggested. The value of further biometric and clinical studies in asymmetry is indicated.

C. K. RUSSEL

**Comparative Results of Colloidal Mastic and Colloidal Gold Tests.** KEIDEL, ALBERT, AND MOORE, JOSEPH EARLE. Arch. Neurol. and Psychiat., August, 1921, vol. 6, page 163.

ALTHOUGH the colloidal mastic test, first introduced by Emmanuel, and later modified by Cutting, has been in limited use, the question of its value compared with that of the colloidal gold test is still an unsettled one. It has much,

however, to recommend it in the less complicated and more certain methods of preparing the reagents, and the mastic reaction itself is said to be more simple and uniform. In order to show that the information provided by the mastic test is equivalent to that got by the gold test and in some cases provide information which the gold test fails to give, the authors studied the spinal fluid of 311 patients, making comparisons with the two methods. The material was made up almost entirely of cases of syphilis, with a control of a small number of non-syphilitic patients.

The technique employed in the mastic test is that described by Stanton in the *Archives of Neurology and Psychiatry*, vol. 4, page 301, of September, 1920. It is essentially as follows: Ten grams of commercial gum mastic are dissolved in 100 cc. of absolute alcohol, and the resultant cloudy fluid filtered several times until a clear straw-colored solution is obtained. This stock solution is kept in glass stoppered bottles at room temperature. The emulsion is prepared with 1 c.c. of the stock solution added to 9 c.c. of absolute alcohol, which is then added, with gentle mixing, to 40 c.c. of once distilled water.

In setting up the test ten small tubes are employed. To the first tube in the series are added 1.5 c.c. of a stock salt solution (99 c.c. of 1.25 per cent. sodium chlorid solution plus 1 c.c. of 0.5 per cent. potassium carbonate solution), and to each of the remaining tubes 1 c.c. is added. In the first tube there is placed 0.5 c.c. of the spinal fluid to be tested. After mixing this dilution of spinal fluid, a titration is made throughout the series by transferring 1 c.c. from the first to the second tube, from the second to the third, etc., 1 c.c. being finally discarded from the last tube. Finally, 1 c.c. of the mastic emulsion is added to each tube. After mixing, the tubes are allowed to stand over night at room temperature, and the results are read in the morning. No special precautions regarding absolute cleanliness of glassware, such as are necessary for the gold test, need be observed.

By observing the reactions obtained in a number of fluids in parallel series of gold and mastic tests the following scale was arrived at: 0, opalescence, no change; 1, milky fluid with no precipitation; 2, milky fluid with slight precipitation; 3, milky fluid with moderate precipitation; 4, cloudy fluid with almost complete precipitation; 5, clear fluid with complete precipitation. With this scale mastic reactions recorded as 2 may occur in normal fluids with about the same frequency as in the gold test, and such reactions are therefore regarded as within normal limits. Fluids which produce moderate precipitation, however, as denoted by reading 3, are to be tentatively regarded as abnormal and to be regarded as a syphilitic zone curve.

The results obtained show that there is a fairly close parallelism between the colloidal gold and the colloidal mastic tests; and that when agreement is lacking, the mastic test seems to detect abnormalities more frequently than does the gold. This fact, and the simplicity of performance of the mastic test, lead the authors to conclude that the test should be an indispensable part of the routine of spinal fluid examinations.

C. K. RUSSEL

**Focal Infection (in Certain Skin Diseases).** ROBERTS, H. LESLIE. *Brit. Jour. Dermatol.*, October, 1921, vol. 23, page 319.

THIS is a paper dealing with the, at present, much discussed subject of the occurrence and persistence of certain chronic skin diseases attributable to tonsillar and nasopharyngeal infection. The cases in this series include alopecia areata, lupus erythematosus, lichen planus, urticaria, prurigo and psoriasis. The offending tonsils need not necessarily be enlarged; in fact the small fibrous variety containing septic crypts are the type more frequently met with. The organism isolated is in the majority of cases the streptococcus longus. Treatment consists in tonsillectomy combined with injections of an autogenous vaccine prepared from the enucleated tonsils. PHILIP BURNETT

**Blood Changes in a Gastrectomized Patient, Simulating Those in Pernicious Anaemia.** HARTMAN, H. R. *Amer. Jour. Med. Sci.*, August, 1921, 162:201.

THE author reports a case in which a blood picture typical of pernicious anaemia developed after gastrectomy. A male patient had a complete removal of the stomach for carcinoma. During one year after operation he was well. Twenty-one months later he returned complaining of anaemia and loss of weight. A blood count showed 2,000,000 red cells, 2,200 white cells and 55 per cent. of haemoglobin with poikilocytosis and some stippling. At the end of a subsequent year the number of red cells was 1,420,000 and Hgb. 34 per cent. Considering the deficiency of gastric ferments found in the stomach contents in pernicious anaemia the writer thinks the case reported suggests that this deficiency is the cause of the blood picture and that conclusions may be arrived at by work along these lines.

A. H. MACCORDICK

**Study of Encephalitis Lethargica in Relation to Anterior Poliomyelitis.** NEUSTAEDLER, LARKIN AND BANZHOF. *Amer. Jour. Med. Sci.*, November 1, 1921, Vol. 162, No. 5.

INVESTIGATIONS were made as to the effect of serum from convalescing encephalitis lethargica patients on the virus of poliomyelitis in vitro. (It has already been established that the serum from convalescent poliomyelitis cases neutralizes its virus of the same disease in vitro, and protects against infection.)

Monkeys were injected intracerebrally with a mixture of poliomyelitis virus and convalescent encephalitis lethargica serum, which mixture had been incubated several hours. At the same time control monkeys were injected, using a virus which had been subjected to the action of normal serum. Five out of seven of the test monkeys showed no effects, while in the control animals all developed paralysis.

A. H. MACCORDICK



## Book Reviews

### THE STORY OF BURKE AND HARE— A REVIEW\*

**Burke and Hare** Edited by WILLIAM ROUGHEAD. Demy 8vo, 280 pages, 13 illustrations. Toronto: Canada Law Book Company.

THIS latest addition to the notable British Trials series will revive interest in the story of these scoundrels who undertook deliberate murder for the money to be gained by the sale of bodies for dissection. Previous to the passing of the Anatomy Act of 1832, which regulated the supply of subjects for dissection, the medical schools of England and Scotland were to a great extent dependent upon the activities of the resurrection men, supplemented by the energetic efforts of keen medical students and junior surgeons. Bransby Cooper's life of Sir Astley Cooper deals very fully with the subject, and he relates many anecdotes of Sir Astley and his relations with the resurrectionists. It is said of Robert Liston that as a student he was as bold and successful a body snatcher as he afterwards became a surgeon. Dr. Knox had rapidly attracted attention as a brilliant lecturer in anatomy and surgery, and his extra mural lecture room was crowded with eager students while Munro Tertius the University lecturer was addressing dwindling classes. In 1828 over 500 students registered with Knox and the need for bodies became so great that Scotland could not satisfy them and bodies were shipped from England. Burke, a drunken Irishman, ran a low cheap lodging house, and one of his lodgers dying with an unpaid debt to his landlord, the body was taken by Burke and his companion Hare to Knox's dissecting room. They received £7 10s. and were told to bring more. Tempted by easy money they smothered a man who was a lodger of Hare's who fell ill. For this body they received £10. Their confessions tell of some sixteen murders committed by them during the next nine months before being brought to justice. Knox's failure to raise any question as to the source of these unburied bodies bought by him left a stain upon his name which time cannot remove, and the fury of the populace was so great that he was forced to leave Edinburgh. His brilliant career came to a sudden end and he eked out a precarious livelihood in and about London for the remainder of his days. Hare's wife and Burke's paramour McDougall must have been accessories to many of the murders, but both escaped the clutches of the law, and Hare becoming King's evidence was given his freedom. The trial caused great excitement in Edinburgh and the principals had narrow escapes from the wrath and indignation of the citizens. "Burking" was a word coined at this time which has still a place in our English vocabulary, and as Mary Paterson was one of their victims, we wonder whether the catch phrase often heard fifty years ago, "who struck Mary Paterson?" also had a similar origin. Wharton Jones and Sir William Fergusson, later president of the Royal College of Surgeons of England and Sergeant Surgeon to Her Majesty, were assistants to Knox at the time and did not altogether escape the shadow of the scandal. The Anatomy Act of three years later put a stop to the work of the body snatchers. Their work about Edinburgh has been described in "The Life of Sir Robert Christison" (1885) who was a student at the time and

had first-hand knowledge. Sir Walter Scott and R. L. Stevenson have used the resurrectionists in their stories, and from Bransley Cooper we learn what fortunes were made by some of the most outstanding characters who devoted themselves to this ghoulish work. Mr. Roughhead's work contains a chapter on the resurrectionists and gives the story of all the Burke and Hare murders, as related in their confessions and as gleaned from contemporary literature, which was of enormous proportions. In addition to much other matter, the legal proceedings are given verbatim.

J. H. ELLIOTT

**Chemical Disinfection and Sterilization.** S. RIDEAL, D.Sc., and E. K. RIDEAL, D.Sc., M.A. Pages vii, 313. London: Edward Arnold, 1921.

THIS book is a mine of information on every type of chemical disinfection. Chapters are devoted to the disinfection of air, of water, of rooms and of persons. The preservation of food, of wood, the killing of plant and animal parasites and even of weeds in a lawn are discussed. Useful chapters describe the chemicals, inorganic and organic, employed in all these processes of disinfection and discuss the theory and practice of their employment. The journal literature is sufficiently given to serve as a source of fuller information on any of these subjects. A final chapter discusses the bacteriological methods of standardizing disinfectants, including of course the well-known method of Rideal and Walker. In reading the book one feels a lack of critical acumen and one notices that there is no clear appreciation of the varying sensitivity of different species and indeed of different races of bacteria to different chemicals. A chapter on "What is one bacterium's meat is another's poison" in its modern dress would be of great value. As a reference book this work will prove very useful.

V. E. H.

**Medical Electricity, Roentgen Rays and Radium.**

With a practical chapter on Phototherapy. By SINCLAIR TOUSEY, M.D., consulting surgeon to St. Bartholomew's Clinic, New York City. Third edition, thoroughly revised and greatly enlarged. Octavo of 1337 pages with 861 practical illustrations, 16 in colours. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$11.00 net. Sole Canadian agents, the J. F. Hartz Company, Limited, Toronto.

THIS is the third edition of a work which is now regarded as a classic work of reference, particularly upon the application of electricity to medical uses.

The first part of the book is taken up with a very full description of electric currents, their physiological effects and modes of application and measurement. As a reference work this is invaluable, but is rather too full for general reading.

There is a much-needed chapter on photo therapy, giving a very practical exposition of this subject in compact form. This chapter provides the general reader with most of the information he requires upon the subject, while at the same time the special worker may find sufficient detail to enable him to apply the methods described.

The remainder of the book is taken up with x-rays and radium, these chapters having been brought up to date. Much of this matter is now of historic interest, as instanced by the colour plates of gas tubes in operation.

No one now judges the condition of a gas tube by its colour even if he still uses one at all. There is, however, a great fund of information which is not equalled by any other book in English upon these subjects. The book will still find its chief field among those who seek special reading upon many of the scientific aspects of these various matters.

G. E. R.

**Transactions of the American Surgical Association.**

Vol. 38. Edited by JOHN H. JOPSON, M.D., Recorder of the Association. Printed for the Association. For sale by William J. Dornan, Philadelphia, 1920.

THIS volume comprises the various contributions made to the Association at its Philadelphia meeting in 1920. The first seven papers deal with the subject of empyema, and are presented by such well-known surgeons as Tuffier, Ashhurst, Bunts, Martin, Davis, Lilienthal and Heuer. Six articles from the pens of Crile, Freeman, Mayo, Terry, Judd and Porter refer to various aspects of the goiter problem. Among the many other subjects treated are exceptionally interesting articles on "Diverticula of the œsophagus" by Bevan, "The calloused ulcer of the posterior wall of the stomach" by W. J. Mayo, "Mesenteric thrombosis" by Ross, "The recognition of dead bone, based on pathological and x-ray studies" by Phemister, and "One year's work in hysterectomy, including the writer's experience with radium in uterine conditions" by Deaver. The latter voices his well-known views concerning radium, and pleads for a somewhat less enthusiastic belief as to the curative value of this agent.

While many of the articles have already appeared elsewhere the volume gives an exceedingly interesting birds'-eye view of the present-day status of surgical thought and opinion, and its perusal cannot fail to afford the reader much valuable information, as well as stimulate his enthusiasm and ambition by the records of results achieved.

E. R. S.

**Clinical Study and Treatment of Sick Children.**

By JOHN THOMSON, M.D., F.R.C.P. Edin., consulting physician to the Royal Edinburgh Hospital for Sick Children; formerly lecturer on the diseases of children, University of Edinburgh. Third edition, re-written and greatly enlarged. 842 pages, with 249 illustrations. Oliver and Boyd, Edinburgh and London, 1921.

THE author deals with the subject of diseases of children from a clinical point of view, discussing laboratory investigation of cases in a general way only. Infant feeding is discussed concisely, using the physiology of the gastro-intestinal tract as the basis for correction of disorders due to food. The last 20 pages of the book are set aside for detailed discussion of certain subjects referred to in the text, *i.e.*, method of case taking; vitamins; instructions to mothers with respect to paralysed children, etc. Throughout the book are numerous references to other texts and to current literature from all centres. The style is clear and the grammatical construction is perfect. Illustrations are numerous and well chosen. A good book for practitioners.

A. B.

**The Effect of Certain Agents on the Development of Some Molds.** K. G. BITLING. National Capital Press, Washington, D.C., November, 1920. Pages 1-178, including 62 plates.

THE molds used (*Penicillium expansum* Link, *Alternaria solani* [E. and M.] Jones and Grout, *Oidium lactis*, Fresenius) were grown on tomato bouillon. The effect of the various agents tested was noted on the period required for the germination of conidia, the extent of growth in a definite period, the form of growth, the formation of con-

idia, the time for maturation as evidenced by the chromatic changes and any irregularity in form, colour or extent. The agents tested (62 in all) included salt, sugar, common spices, vegetable acids, alcohol, formaldehyde, hydroxide, lead acetate, sulphuric acid, potassium hydroxide, atropin, sulphide, mercuric acid, etc.

The effects produced indicate that the molds used possess great adaptability and resistance to adverse conditions.

J. G. F.

**Autoerotic Phenomena in Adolescence.** By K. MENZIES. Second edition; 100 pages. Price 5s. net. H. K. Lewis & Co., Ltd., 136 Gower Street, London, W.C.1.

THIS little book on masturbation is written from the standpoint of the psychoanalyst and the development of the habit is traced carefully from childhood, and considered from the psychological, pathological and ethical standpoint. The treatment is handled with care, and the clergy are advised how to manage cases properly. Reassurance and not condemnation is good therapeutics; over-emphasis is unwise, but sudden cessation is inadvisable. The small volume is useful for the physician and the clergyman but is not suitable for the patient.

G. W. H.

**The Clinical Examination of the Nervous System.**

By G. H. MONRAD-KROHN, M.D., (Christiania) Pages, xvi and 135, 12 illustrations. Price 6s. net. H. K. Lewis & Co., Ltd., 28 Gower Place, London, W.C.1.

THIS little book of 129 pages on the examination of the nervous system is one of the most satisfactory manuals that has ever been published, and is most useful for students and for those practitioners that have not their methods of examination always in active use.

There is a short chapter on the reflexes of spinal automatism that is not usually found in text books, and makes the book of unusual interest; and while the rest of the volume is the collation of the more ordinary forms of examination, yet the form of their description is both accurate and interesting.

G. W. H.

**The Hot Springs of New Zealand.** By A. S. HERBERT, M.D., O.B.E., Pages xiv, 284, illustrations 87, maps 3. Price 15s. H. K. Lewis & Co., Ltd., London, 1921.

THIS beautifully written and superbly illustrated book makes one long for the opportunity to visit the famous hot springs and geysers of the "thermal district of New Zealand." Could one present this book to a wealthy patient he would fly to this land of wonders and health. The pictures of the baths at Rotorua cause one to wonder why our mineral springs have not been developed. The discussion of the principles of balneology and of the uses of the various mineral waters and mud baths are clear and scientifically written. All together the book is a credit to both author and publisher.

V. E. H.

**Infections of the Hand.** A guide to the surgical treatment of acute and chronic suppurative processes in the fingers, hand and forearm. By ALLEN B. KANAVEL, M.D., assistant professor of surgery, Northwestern University Medical School, attending surgeon, Wesley and Cook County Hospitals, Chicago. Fourth edition, thoroughly revised, illustrated with 185 engravings. Lea and Febiger, Philadelphia and New York, 1921. Price \$5.50 net.

THIS volume presents the most complete, comprehensive and exhaustive survey of infections of the hand that has so far been published in the English language. In the opening chapter reference is made to the history of



the evolution of our knowledge of these conditions and of their proper treatment, and from this to the final chapter on restoration of function every angle is thoroughly and scientifically considered, always with the viewpoint of proper treatment in mind.

The author's division of types of infection into simple localized, and grave, and the subdivision of the latter into acute lymphangitis, tenosynovitis, and fascial space abscesses is admirable, and lends itself well to the development of the proper mental picture of the pathological processes at work. The illustrations are numerous and excellent, and great stress is laid on the proper position and length of incisions for the relief of the various types of infections.

From a practical standpoint the only criticism one can offer is that the work is too exhaustive for the average reader, with the result that the main and fundamental ideas tend to become obscured by attention to a mass of detail.

E. R. S.

**Essays on Surgical Subjects.** By SIR BERKELEY MOYNIHAN, K.C.M.G., C.B., Leeds, England. Octavo of 253 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$5.50 net. The J. F. Hartz Co., Limited, Toronto.

NINE of the distinguished author's valuable contributions to surgical literature are here presented in collected form so that as he remarks, "It presents a consecutive train of thought and experience for final judgment." The several essays cover surgical operations in general, the surgery of the abdomen with special reference to the acute emergencies, and to the surgical diseases of the stomach, and the surgery of the chest. The first "Murphy memorial" oration is also included. The statistical figures have been brought up to the end of the year 1920.

Those who are well acquainted with Moynihan's teaching will welcome the opportunity of having these various articles collected in one volume, and any student of medicine who has not read his works will be incalculably benefitted by a perusal of these dissertations by a past-master not only in the art of surgery but also in the command of the English language.

E. R. S.

**Lectures on the Surgery of the Stomach and Duodenum.** By JAMES SHERREN, C.B.E., F.R.C.S., Surgeon to the London Hospital. Published by H. K. Lewis and Co., Ltd., 28 Gower Place, London, W.C.1. Size cr. 8vo., 96 pages. Price 4s. 6d. net.

IN this little volume the author covers the surgery of the stomach and duodenum admirably, and its perusal will well repay every student of this subject. His conclusions are evidently based on a wide personal clinical experience, and are couched in most clear and concise language. After reading this work one cannot but conclude that the value of a book is by no means dependent on its size, and to express the regret that so many authors deem it necessary to encumber their volumes by useless padding thereby causing distinct loss of time and patience to their readers. The author lays stress on the serious nature of ulcer of the stomach, and expresses the idea that the prophylaxis of carcinoma of this organ rests largely in the proper treatment of ulcer.

E. R. S.

**International Clinics.** Thirty-first series, vol. 3, 1921. Edited by H. R. M. LANDIS, M.D., Philadelphia,

U.S.A., with medical and surgical collaborators in United States, England and Canada. J. B. Lippincott Company, Montreal, Que. Price \$2.50 per volume or \$10.00 for the series of four.

ALTHOUGH the outstanding feature of this volume is an admirable symposium on actinomycosis, covering many of the organs and tissues which may be involved, the departments of medicine, pædiatrics, industrial medicine and surgery are represented by excellent and most readable articles. In surgery such practical subjects as fractures of the lower end of the radius, the radical cure of hydrocephalus, fractures of the skull, the acute abdomen and the surgical kidney are discussed by authors who have succeeded in making a splendid presentation of their special subject. The articles in "Industrial Medicine" are principally surgical, though pneumoconiosis and Hodgkins' disease are discussed as well as the organization of a medical industrial department. The illustrations are good and the volume is one which the general practitioner can read with much pleasure.

J. H. E.

**Medical Examination for Life Insurance.** By THOS. D. LISTER, C.B.E., M.D., F.R.C.S., M.R.C.P. 8vo, pages vii, 168. London: Edward Arnold & Co., 1921. Price 10s. 6d. net.

THE author has based this work upon long experience as a physician and as the medical officer of large English assurance companies. It treats of the application of medicine to the business problems involved in life insurance. Mortality tables and actuarial work are not included. It is an attempt to make clear to the examiner his relation to the company and point out the essentials in an examination. It is pointed out that medical selection is only a part of selection generally, that many other factors are concerned in assessing the risk as average or otherwise, and that the head office often have additional information which may cause them to accept or alter the opinion expressed by the medical examiner. The medical examiner is usually asked to express his opinion of the risk on the basis of his physical examination alone. To form an opinion of value the examiner must know something of prognosis as well as of the value of physical signs of disease and of altered function. In the chapter on medical fees we learn that the British Medical Association through its representative body, in June 1920, made an agreement with the Life Offices' Association, fixing a scale of fees to govern its members. For industrial work up to £100 the fee is 10s. 6d., over £100, 21s., and for ordinary policies a flat rate of 21s., whatever the amount. In view of the endeavour being made by some of the profession in Ontario to secure an increase in the fee paid by standard companies, it is interesting to learn that the increase in the fee paid in Great Britain has been accompanied by an increase in the extension of non-medical examination business by standard companies; and further we read that it is a curious fact that questions as to the amount of fee are more often raised among practitioners who are only occasionally called upon to examine than by medical examiners who are men of considerable standing in the profession, and are often of the consultant rank. To make the book complete there is much that appears elementary, yet the book abounds in wise comment and mature opinion. It is an excellent manual for the physician who is taking up insurance work.

J. H. E.

## News Items

## ONTARIO

## TO THE PROFESSION IN ONTARIO

MORE than one item has appeared in these columns setting forth the difficulties which confront a medical journal circulating in a country as small as ours, with such distinctly limited possibilities as regards the number of subscribers. It seems hardly necessary to call attention to the fact that journals such as *The Lancet*, *The British Medical Journal*, and *The Journal of the American Medical Association*, have subscriptions totalling many thousands, whereas the best ever to be hoped for in Canada can only be (at present at least) a medical journal with perhaps four or five thousand subscribers.

It is most essential on the other hand that the journal be one with proper ideals, and with a real knowledge of present-day medicine in all its many branches. Nothing else can ever appeal to the practitioner who is at all interested in the welfare and progress of the practice of medicine and its proper teaching. For this reason, the standard of the *Journal of the Canadian Medical Association* must remain high, and to keep this high standard it is perfectly apparent that the few thousand medical men in Canada must make the sacrifice of paying more for their *Journal* than would the many thousands in the bigger countries. It would be a simple matter to throw over all effort at medical journalism, and placidly to allow American and English journals to do the publishing of work produced in Canada. Such an attitude, however, would be at variance with that Canadian pride which sees every year better work and more of it coming from the pen of Canadian writers, and can never for a moment be entertained. There must be published in Canada one real medical journal at least. To put the *Journal* on some more stable foundation seems at the present moment essential to a degree; the necessity for enlargement becomes more apparent each month; in the Ontario section alone there is an accumulation of papers sufficient for the next ten months at the present rate of publication, and it is to be remembered that institutions such as the General Hospital, The Academy, the Sick Children's Hospital, St. Michael's Hospital, the Western Hospital, and Grace Hospital in Toronto, rapidly re-organizing since the war, will soon contribute more than enough material to fill a whole monthly issue.

In spite of the opposition expressed in some quarters, it seems that the bond issue is the best method of meeting the difficulty which confronts the *Journal* in its endeavour to step forward to meet the growing demands of the profession. The legality of issuing the bonds in Ontario has been considered, and on this point there is now no doubt. The next step is the putting of the matter before the profession as a whole. It is useless and unfair for the Provinces to criticize Montreal and its possessing the *Journal* with its machinery. The Editors and Board of Managers in that city have kept the light of journalism burning, not only in the long dark period before the war, but during the war itself, when the majority of the Editorial staff were doing duty with the Canadian Army in France and England. To them is owing every consideration and all our help in the endeavour to make a national journal. They have given freely of their time and energy in a way that should command admiration instead of carping criticism, and if they fail through lack of our support, the *Journal* fails

and falls with them. Such a happening is inconceivable, and Canadian medicine without the *Journal of the Canadian Medical Association* is something not to be even visualized.

The profession in Ontario is asked to give every consideration to this matter of a bond issue. Back of it is only one thought, the serving of the profession in every way. It should be possible in many cases for several members to unite in buying one bond, kept in trust, perhaps, by some one of them to whom the drawing of the five per cent. interest is not so important as is the putting of Canadian medicine well to the forefront; it is probable also that many of our successful practitioners will besiege the Secretary with orders for more than one bond, feeling that thereby they are using their privilege, as successful men in life, of helping on a common cause. We know the appeal will not be made in vain, and we feel sure that Ontario, the backbone and main support of all measures for the public good, will see to it that she takes her share in this plan of pushing forward to support the medical journalism necessary for the progress of medicine in this part of the world.

O. E. B.

## SPECIAL MEETING OF THE ONTARIO MEDICAL ASSOCIATION

THE semi-annual meeting of the Ontario Medical Association was held at the Academy of Medicine, Toronto, on Wednesday and Thursday, December 7 and 8, 1921. On Wednesday afternoon, between fifty and sixty members of the Committee on General Purposes assembled to receive and deal with the reports of the Directors and the various committees. The action taken by the Committee on General Purposes was confirmed by a general meeting of the Association on Thursday afternoon. Some of the important points may be summarized as follows:

*Re income tax.*—The Directors were urged to make further representations to the Department of Finance requesting that exemptions should include medical society fees, the cost of magazines and periodicals, a greater allowance for the depreciation on books, and the expenses entailed in taking a holiday or in attending post-graduate courses.

*Re the Workmen's Compensation Board.*—A special committee was to be appointed by the Directors to act with the Workmen's Compensation Board to deal with matters of interest which arise from time to time between the Board and the profession.

*Re the Joint Advisory Committee.*—This committee, which is representative of the College of Physicians and Surgeons and the Ontario Medical Association, was instructed to submit its findings to the profession at the earliest possible moment with a view to obtaining an expression of opinion from the profession with reference to medical legislation in this province.

*Re the Ontario Temperance Act.*—Upon assurances having been received from the Board of License Commissioners that they would welcome the assistance of the Ontario Medical Association in dealing with certain technical breaches of the Act, a committee of three was appointed by the Association to confer with the License Commissioners on all such questions.



*Re the Increase in Fee.*—The Association unanimously resolved to increase the annual membership fee to \$10, this fee to become effective January 1, 1922. In connection with this matter, it was brought to the attention of the Association that practically all of the other provincial associations collected not only a \$10 provincial fee, but in addition were arranging to collect the \$10 annual fee from their members for the Canadian Medical Association.

A great deal of routine business was dealt with, the whole meeting manifestly demonstrating the advisability of holding a mid-year business session which should greatly reduce the time necessary for the transaction of business at the regular annual meeting, which is to be held in Toronto on May 30, 31, June 1 and 2, 1922.

A GENERAL session of the Academy of Medicine of Western Ontario was held on Monday November 28th, at 2 p.m., in the auditorium of the Medical School, whereat papers were read by Dr. Joseph C. Bloodgood, B.Sc., M.D., of Baltimore, and Dr. Edward W. Archibald, A.B., M.D., C.M., of Montreal.

THE following meetings yet remain to be held in the schedule of meetings for the season of 1921-22 of the Kingston and Frontenac Medical Society: Monday, January 9, 1922—Dr. F. J. Farley, President of Ontario Medical Association; Monday, February 13th—Dr. W. R. Jaffrey, Hamilton, "Blood Transfusion"; Monday, March 13th—Clinical evening, Sydenham Hospital; Monday, April 10th—Clinical evening, Rockwood Hospital; Monday, May 8th—Annual meeting.

THE unveiling of the foundation stone of the Sick Children's War Memorial Hospital, London, Ontario, occurred on November 4th. The dedicatory ceremonies were in charge of the Imperial Order of the Daughters of the Empire Hospital Committee. His Honour, the Lieutenant-Governor of Ontario, Mr. H. Cockshutt, in dedicating the hospital, paid a very high tribute to the unselfish work and sacrifice of the women of London in contributing such a magnificent building. It is estimated that the total cost will be about \$350,000.

THE regular monthly meeting of the Middlesex Medical Association was held November 30th in the Tecumseh House. Dr. George Strathy, of Toronto University, gave an interesting paper on the differential diagnosis of pains in the back. Dr. W. Doan, of Harrietsville, gave a paper on the treatment of goitre. These papers were discussed at length by the members. The officers of the organization are: Dr. A. F. Thompson, president; Dr. George Racey, Parkhill, first vice-president; Dr. W. Dewar, second vice-president; and Dr. W. H. Woods, secretary and treasurer. The next meeting of the association will be held some time in January.

THE Western Ontario Academy of Medicine held a session on November 4th, at which Dr. L. Barker of Johns Hopkins conducted a medical clinic on nephritis syphilis, epilepsy and encephalitis. He also spoke on the subject of endocrine influence. A special session of the Academy was held on the afternoon of November 8th, in the auditorium of the Medical School, to greet a distinguished visitor, Sir William Taylor, K.B., F.R.C.S.I., of Dublin, who in a very pointed address gave a comprehensive outline of acute intestinal obstruction, with particular

reference to the type of intussusception occurring in children. Chronic obstruction and appendicitis were touched upon in his reply to the discussion of his paper.

IN order to meet the needs of those who desire short courses of instruction in radiology, the Faculty of Medicine of the University of Toronto have arranged to provide three courses a year of one month each at the Toronto General Hospital. Classes will be limited and an intensive schedule has been outlined to include:—(a) radiographic technique; (b) interpretation; (c) gastro-intestinal examination. In these courses the entire resources of this large clinic will be placed at the disposal of the student in the most practical manner possible. The tentative dates are as follows:—first course, February 15th to March 15th, 1922; second course, month of October, 1922; third course, month of January, 1923. For full information and terms apply to the Secretary, Faculty of Medicine, University of Toronto.

DISTRICT No. 5 medical meeting, comprising the counties of Peel, York, Ontario and Simcoe, and presided over by Dr. George S. Young, of Toronto, held its meeting for this year on the dates of December 7th and 8th, concurrently with the special business meeting of the Ontario Medical Association. Wednesday and Thursday mornings and Wednesday afternoon were spent by the practitioners in the various public hospitals in Toronto, attending clinics, ward rounds, demonstrations and operations. The Thursday afternoon programme was presented by Professor J. J. McLeod of the University of Toronto, who spoke on "Animal Experimentation," and Professor L. J. Austin of Queen's University, who chose as his subject "Gall Stones and Gall Bladder Infections." Both addresses were interesting and instructive. The outstanding feature of the meeting was the splendid discussion which followed the reading of the papers. The attendance was fair, and many of those who were present expressed their hearty appreciation of the programme.

THE district medical meeting of Counsellor District No. 3 of the Ontario Medical Association, comprising the counties of Bruce, Grey and Dufferin, was held under the auspices of the Grey County Medical Society in Owen Sound on Wednesday, October 26, 1921, with about fifty practitioners in the district present. The sessions were presided over by Dr. George S. Burt, Owen Sound, Counsellor for the district. The afternoon programme was presented by Dr. W. E. Gallie, of Toronto, who took up the subject of "Fractures," and by Dr. F. W. Marlow of Toronto, who spoke on "The Considerations of Some Gynaecological Conditions." Dinner was served in the Y.M.C.A., immediately following which a short address was given by Dr. F. J. Farley, of Trenton, President of the Ontario Medical Association, on the subject of "The Needs for Closer Co-operation and Better Organization of the Medical Profession." The evening session was devoted to the subject of "Infant Feeding," the paper being presented by Dr. Alan Brown of Toronto. Both sessions were characterized by keen discussion, which with the excellent presentations, made the meeting very successful.

THE Faculty of Medicine, University of Toronto, has instituted a graduate course leading to a diploma in radiology. Candidates for the diploma must (a) be graduates in medicine of this university or some other university recognized for this purpose by the senate; (b) have spent at least one year after graduation as an interne in a recog-

nized hospital. The curriculum leading to the diploma extends over one winter session of eight months. The session will be devoted to courses in (a) physics, (three hours daily); (b) radiology: 1—technique; 2 anatomy; 3—pathology; 4—diagnosis; 5—radio-therapy. Examinations on the subjects of the curriculum will be held at the end of the session. Candidates who have passed the examinations and who present certificates of having satisfactorily completed the work specified will be granted the diploma in radiology.

THE full course of post-graduate lectures for the session of 1921-22 given by Queen's University Faculty of Medicine is as follows: October 28—Dr. John Tait, professor of Physiology, McGill University, "Cerebral Localization."; November 10—Dr. William Boyd, Professor of Pathology, University of Manitoba, "Encephalitis Lethargica"; November 25—Professor G. Spencer Melvin, "The Mechanism of the Heart Beat"; December 9th—Dr. J. C. Connell, "Equilibrium and the Semicircular Canals"; January 13th—Professor Reed, "Food Poisoning; Organisms"; January 27th—Dr. Austin, "Genito-Urinary Tuberculosis"; February 10th—Dr. W. T. Connell, "Basal Metabolism"; February 24th—Dr. Mylks, "Pelvic Infections"; March 10th—Dr. Bogart, "The Surgical Treatment of Thyroid Disease"; March 24th—Dr. Gibson—"Heart Arrhythmias"; April 14th—Dr. Williamson, "The Toxæmias of Pregnancy."; April 21st—Professor Miller and Dr. Matheson, demonstration of preparations and specimens, with projection apparatus. The lectures will take place in the new medical building at 5 p.m.

THE district medical meeting of Counsellor District No. 1 of the Ontario Medical Association, comprising the counties of Essex, Kent, Elgin, Lambton and Middlesex, was held in Windsor on Wednesday, November 2, 1921, under the auspices of the Essex County Medical Society, whose President, Dr. W. A. MacDonald of Windsor, after welcoming the assembly handed the meeting over to Dr. R. G. R. McDonald of Sarnia, Counsellor of the district. The afternoon programme was as follows: "Some Types of Heart Disease," Dr. William Goldie, Toronto; "Functional Nephritic Tests," Dr. S. M. Asselstine, Windsor; "The Diagnosis and Treatment of Some Gynaecological Conditions," Dr. F. W. Marlow, Toronto. At 6.30 p.m. dinner was served, and was immediately followed by short addresses from Dr. F. J. Farley, of Trenton, and Dr. T. C. Routley, of Toronto, President and Secretary respectively of the Ontario Medical Association. The evening programme "Operative Treatment of Fractures—End Results as Contrasted With Those of Other Means" (with lantern slides) was presented by Dr. E. R. Secord, of Brantford. From the interest manifested throughout the proceedings, and the large attendance, it was evident that the meeting was appreciated by the medical profession of the district.

AN item of interest to many members of the medical profession is the recent announcement by the University of Toronto of a series of five lectures on heredity and genetics to be delivered in January by Professor William Bateson, Director of the John Innes Institution, Merton, Surrey. The lectures will be from 5 to 6 p.m., on January 3rd, 5th, 6th, 9th and 10th in the north lecture room of the medical building. Professor Bateson is one of the foremost living biologists and the chief pioneer worker of the modern field of genetics, a branch of investigation which owes its development largely to the discovery of the so-called Mendelian factors as regards the transmission of characteristics from one generation to the next. It was Professor Bateson who, in 1901, first brought to the notice of the English-speaking world the work of Gregor Mendel, forgotten for over thirty years. Since then the field of genetics has had a tremendous growth, and its effects have been felt in a variety of other fields, including not only plant and animal breeding but also medicine and sociology, the latter especially because of the explanation afforded of the inheritance of normal and abnormal physical and mental states and their individual or racial consequences.

THE district medical meeting of Counsellor District No. 4 of the Ontario Medical Association, comprising the counties of Haldimand, Lincoln, Welland, Wentworth and Halton, was held at the Royal Connaught Hotel, Hamilton, on Saturday, October 29, 1921, under the auspices of the Hamilton Medical Society. The meeting was presided over by Dr. F. W. Ernest Wilson, of Niagara Falls, Counsellor of the district. The afternoon programme was as follows: "Blood Transfusion" (technique), with lantern slides, Dr. W. R. Jaffrey, Hamilton; "The Acute Abdomen," Dr. J. K. McGregor, Hamilton; "The Barium Meal and Its Value in Surgical Diagnosis," (with lantern slides) Dr. W. J. MacDonald, St. Catharines; "Common Mistakes in Diagnosis," Dr. Ingersoll Olmsted, Hamilton; "Public Health Topics," Dr. D. A. McClenahan, Hamilton; "A Suggestion Regarding Treatment of Difficult Forearm Fractures," Dr. W. K. Colbeck, Welland; "The Tonsils," Dr. J. P. Morton, Hamilton; "Notes on Pre-natal Treatment," Dr. J. Sheehan, St. Catharines; "Cerebro-Spinal Lues," Dr. J. B. Bauer, Hamilton; "Public Health Laboratory Explanations," Dr. W. Deadman, Hamilton; "X-ray Exhibits," Dr. L. R. Hess, Hamilton; "Notes on Fractures," Drs. F. W. E. Wilson and C. P. Fenwick, Niagara Falls. An informal dinner was served in the banquet hall of the hotel at 7.00 p.m., to which the ladies were invited. Following dinner, Dr. Boothby, chief in metabolism, Mayo clinic, Rochester, Minn., gave a very interesting address, and was followed by Dr. T. C. Routley, of Toronto, who outlined the work of the Ontario Medical Association, urging upon all present the need for continued co-operation and support. From point of view of the programme supplied, the discussion, and attendance, the meeting was a marked success.

## NOVA SCOTIA

ONE more unit has been added to the hospital area growing up in the vicinity of the Medical School of Dalhousie University in Halifax. The new tuberculosis hospital recently opened shows Halifax taking one more very important step along the lines of public health and preventive medicine. This splendidly appointed tuberculosis hospital will house from fifty to sixty-five persons

in advanced stages of tuberculosis. The far-reaching effect of proper housing of persons in the terminal stage of this disease at the stage when they are the greatest menace in the home, has an almost incalculable advantage to the public. What is equally important to the public, and what must be consoling to the relatives and friends of the tuberculous sick who need hospital care, is to be advised



of the recent reciprocal action of the charities committee of the City Council and the medical faculty of Dalhousie University.

It will be recalled that some weeks ago the University offered to nominate an expert consulting and attending medical staff for the new tuberculosis hospital, who will give their services free to the city, and asked at the same time that students in the medical course be given opportunity to study tuberculosis at this hospital. The city officials saw that not only would this opportunity for study be of great advantage to the future doctors of Halifax and vicinity, and would insure the highest type of service free, but would also be of great assistance to future doctors of medicine throughout the maritime provinces, and they acquiesced in the request.

Announcement has just been made by Alderman H.S. Colwell of the appointment of the medical director, consulting and attending staff selected under this reciprocal programme. They are as follows: medical director, Dr. W. Bruce Almon; consulting surgeons, Drs. E. V. Hogan and H. K. MacDonald; consulting internist, Dr. Kenneth A. MacKenzie; consulting laryngologist, Dr. R. Evatt

Mathers; consulting pathologist, Dr. A. G. Nicholls; consulting obstetrician, Dr. W. B. Almon; consulting urologist, Dr. Frank Mack; consulting paediatrist, Dr. M. J. Carney. Attending staff of tuberculosis specialists, Dr. T. M. Sieniewicz, assisted by Drs. M. J. Carney and H. G. Grant. Attending dentist, Dr. G. N. Stults; pathologist, Dr. D. J. MacKenzie, and resident interne, senior student, Mrs. Corey S. Bezanson.

With a staff of such specialists in charge of the tuberculous sick, the public may be assured that nothing will be left undone that might offer a cure or relief for those admitted for treatment. Those who deliberately enter the hospital in order to protect their loved ones at home may be assured of the best of care and of every comfort that a modern hospital can provide, easy of access to friends and relatives.

When the University Health Centre to be erected out of Rockefeller funds is erected and staffed, the city of Halifax will have the most complete tuberculosis and best co-ordinated programme of any Canadian city, and the medical school will have facilities for teaching medicine second to no school on the American continent.

## QUEBEC

THE Province of Quebec Medical Association held its inaugural meeting on December 5th, in Montreal. The prospective constitution and by-laws were read and discussed, and temporary officials were nominated. The permanent appointments will be made at the first annual meeting, which should occur in the very near future. Dr. Grondin of Quebec was nominated as President, Dr. W. G. Reilly of Montreal as first vice-president, and Dr. Harwood second vice-president. Drs. Rheume and K. Cameron were appointed joint secretaries, and as addition-

al members of the executive committee Drs. D'Agneau and C. F. Martin were selected to co-operate in the organization of the association. In all probability the first meeting will be held in Montreal, and the programme will consist of clinical demonstrations in the various English and French hospitals during the two days of the session. It was considered wise that an effort should be made to give demonstrations, rather than papers, in order to obviate difficulties which might arise from the bi-lingual character of the meeting.

## ALBERTA

DR. WHITELOW of Edmonton, the Chairman of the Provincial Medical Board of Alberta, was operated upon

recently for appendicitis. His many friends will be glad to learn that he has made a good recovery.

## MANITOBA

THE following resolutions were passed at the recent annual meeting of the Manitoba Medical Association:\*

1.—*Be it resolved:*—Whereas it has been deemed advisable in the interests of national medical progress that the Canadian Medical Association have placed at its disposal increased funds for its activities, that this Association approves of the annual fee of the Canadian Medical Association being increased to \$10.00 as from January 1, 1922.

2.—*Whereas*, there is not in the Dominion of Canada any means provided for the official inspection of drugs on

sale throughout Canada or of clinical thermometers, and *whereas*, there is inspection of drugs and of thermometers in other countries, while there is no inspection in Canada is likely to make of Canada a dumping ground for inferior preparations and defective instruments; *resolved*, that the Manitoba Medical Association urge upon the Canadian Medical Association the creation of a Bureau of standards and the enactment of stringent regulations.

3.—*Resolved that:*—We memorialize the Canadian Medical Association to make representations to the Dominion Government that in the manufacture or importation of salvarsan products no monopoly or discrimination be tolerated, having due regard only to the therapeutic value of all such derivatives which are on the market.

4.—*Resolved that:*—This meeting of the Manitoba Medical Association instruct the executive committee for

\*The above resolutions, in so far as they affect the Canadian Medical Association, will be brought to the attention of the Association at its annual meeting in Winnipeg.

the new year, to co-operate fully with the president of the Canadian Medical Association and with the Winnipeg Medical Society, in promoting the success of the Canadian Medical Association, meeting at Winnipeg in 1922.

5.—*Whereas*, at the Halifax meeting of the Canadian Medical Association a committee was appointed to collect data with regard to the practice of fee-splitting, and to

endeavour to find a solution for the difficulties associated therewith; and *whereas*, it was requested that each provincial association appoint a committee to co-operate with that of the Canadian Medical Association: *resolved*, that such a committee of the Manitoba Medical Association be appointed.

## BRITISH COLUMBIA

THERE has just been completed on the grounds of Shaughnessy Hospital, which is operated and owned by the Department of Soldiers' Civil Re-Establishment of Canada, a pavilion for the accommodation and treatment of cases of tuberculosis which may either be awaiting transfer to a sanatorium, or cases which may be deemed unsuitable for sanatorium treatment. The general plan of the pavilion is excellent, containing two wings connected by a central administrative section. One wing contains six private and two semi-private wards. The other wing is a general or open ward containing 15 beds. The building faces south and a large twelve-foot verandah, or sleeping porch, covered with an awning which can be rolled up on dark days, extends the full length of the west and south sides. The building is heated by hot water with a separate heating plant and is of stucco finish and extremely pretty, and was erected at the cost of \$12,400. This amount was provided from the remainder of the regimental fund of No. 5 Canadian General Hospital, which, as will be remembered, went overseas from this province, and which has been held by the trustees of this fund ever since. It is difficult to imagine how this money could have been better expended. This building will also be the headquarters of a clinic for diseases of the chest, for ex-soldiers desiring treatment or re-examination, and will in fact provide for ex-soldiers special chest examining facilities in the same manner that the Rotary Clinic does for civilians in the city of Vancouver.

DRS. McEACHERN and Vrooman of Vancouver made an appeal to the Rotarians for \$2500 for the tubercular relief committee of that club. Dr. M. T. McEachern also addressed the Kiwanis Club of New Westminster on cancer, and sketched the efforts of the American Society for the Control of Cancer in aiding scientific research and furthering the education of the public.

MR. ALBERT CARLESS of King's College Hospital, London, was the guest of honour at a dinner held in the University Club and tendered by the Vancouver Medical Association. Mr. Carless is in Canada in the interests of the work of the Barnardo Homes. He at one time was one of Lister's house surgeons and later his assistant. He recalled Lister's personality and spoke on the surgery of those "ancient" days. At the dinner there were present sixty of the profession of Vancouver, as well as several guests who were in the city for a meeting of the Pacific North-west Surgical Association.

At the regular meeting of the Vancouver Medical Association in November there was a symposium on Tuberculosis. Dr. G. B. Murphy discussed the question of bovine tuberculosis and public health, Dr. A. J. Damman the transmissibility of the bovine type of bacillus from the standpoint of a veterinary surgeon, and Dr. J. Ellis Griffiths some problems in the bio-chemistry of tuberculosis. A clinical meeting of the Association was also held, at St. Paul's Hospital, where many interesting cases were exhibited.

DR. ALEXANDER LAPP has been appointed to the position of Medical Superintendent of Tranquille Sanatorium, British Columbia. Dr. Lapp saw service in the war and for the past three years has been assistant superintendent at Ste. Agathe des Monts' Sanatorium. He had previously served on the staff of the Gravenhurst Sanatorium in the Muskoka district. Dr. James Kenny, who has been assistant superintendent at Tranquille, will leave to take up post-graduate work.

## GENERAL

The Report of the Proceedings of the Second English-Speaking Conference on Infant Welfare, held at Central Hall, Westminster, on July 5th, 6th and 7th, 1921, has been published and may be ordered from the National League for Health, Maternity and Child Welfare, at 117 Piccadilly, London, W. 1, for the sum of 2s. 6d. postpaid. Twelve or more copies may be ordered at the reduced rate of 1s. 9d. per copy. The chief subjects dealt with are as follows: milk; maternity homes; residential provision for mothers and babies (especially unmarried mothers with babies); inheritance and environment; the ante-natal factors of life and death; welfare centres; the syphilitic mother and her infant; the psychology of the

mother and her child; the vital and essential forms of child welfare work. Everyone interested in child welfare will find this a valuable handbook on the above subjects. The addresses are, as might be expected, up-to-date, interesting, and full of instruction.

THE twenty-first annual report of the Canadian Association for the Prevention of Tuberculosis, a volume of 150 pages crammed with interest, is about to come off the press and be distributed, in English and French, to over 7,000 recipients, before Christmas. This is obtainable upon request from the secretary, Bank St. Chambers,



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Ottawa. There is no charge. A synopsis directory compiled by the same office, and printed for it by the courtesy of the Department of Dr. Amyot, Federal Deputy

Minister of Health, is being enclosed along with the annual report. It contains details of the agencies tabulated below, and is obtainable for the asking.

### CANADIAN AGENCIES AVAILABLE FOR THE DIAGNOSIS AND THE TREATMENT OF TUBERCULOSIS

	ALBERTA	BRITISH COLUMBIA	MANITOBA	NEW BRUNSWICK	NOVA SCOTIA	ONTARIO	PRINCE EDWARD ISLAND	QUEBEC	SASKATCHEWAN
Sanatoria.....	2	2	2	2	3	12	1	8	1
(beds).....	201	221	390	175	360	1792	75	563	280
Hospital beds for tuberculous.....	*	*	*	†	†	†	†	1	*
Chest Clinics.....	2	2	3	3	14	13	1	6	2
Observation beds, Chest Clinics (centres).....	1	3	3	1	1	9	0	0	2
Open Air and Nutritional Classes in Schools.....	1	2	3	0	2	11	0	1	0
Public Health Nurses doing work for Tuberculous (centres).....	2	3	58	8	12	50	1	5	11
Diagnostic Laboratories.....	3	2	5	3	2	25	2	11	2
Day Camps.....	2	2	0	0	1	0	0	0	0
Preventoria.....	0	0	1	0	0	3	0	0	1

\* All hospitals approved by their Provincial Governments

† 10% of beds of all hospitals approved by their Provincial Governments

‡ No provision for the Tuberculosis stated

## Obituary

### ROBERT CHILDS PATERSON

DR. ROBERT CHILDS PATERSON of Saranac Lake died suddenly under tragic circumstances on December 24, 1921, aged 43 years.

After a brilliant school career, he graduated from the Faculty of Arts, McGill University, as gold medallist, and with first-class honours. He then entered the Faculty of Medicine, and on graduation won the Holmes gold medal. After spending two years in the Montreal General Hospital, during the latter portion of which he acted as Medical superintendent, Dr. Paterson went to Europe, 1904-06, and studied in London, Freiberg, Berlin and Berne. Unfortunately, shortly after his return to Montreal he developed

pulmonary tuberculosis, and was compelled to take a prolonged cure. Instead of being disheartened at this break in his career, after regaining his health, he devoted himself to the study of pulmonary tuberculosis in such a keen and thorough manner that he rapidly became an authority in this special branch, and a friend and comfort to those who came under his care. His opinions and written contributions all show depth of thought and breadth of judgment.

On learning of his death, Saranac Lake and vicinity suspended the Christmas celebrations in respect to this beloved physician. A staunch friend, devoted husband and father, by his death the Canadian profession also loses an eminent representative.

## Books Received

The following books have been received and the courtesy of the publishers in sending them is duly acknowledged. Reviews will be made from time to time of books selected from those which have been received.

COLLECTED PAPERS OF THE MAYO CLINIC, Rochester, Minn. Octavo of 1392 pages, 446 illustrations. Philadelphia and London: W. B. Saunders Company. Cloth, \$12.00 net. (By Mrs. M. H. Mellish) 1921.



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**PRINCIPLES OF MEDICAL TREATMENT.** Offering clearly and concisely sound principles of medical treatment based on known pathology. By **GEORGE CHEEVER SHATTUCK, M.D., A.M.** (Fifth revised edition). Octavo, 309 pages, \$3.50. Publishers: W. M. Leonard, Boston, 1921.

**THE BLOOD SUPPLY TO THE HEART.** Offers a complete description of the arterial and venous blood supply to the normal heart; blood supply to the neuromuscular system of the heart and its pathological and clinical significance, together with a newer view in the discussion of the anatomical factors concerning the etiology and development of valvular endocarditis, and of the physiological course and character of the cardiac circulation in the various age periods. By **LOUIS GROSS, M.D., C.M.,** Douglas Fellow in Pathology, McGill University, and Research Associate, Royal Victoria Hospital, Montreal. Publishers: Paul B. Hoeber, New York. 171 pages. Price \$5.00. 1921.

**DISEASES OF THE DIGESTIVE ORGANS.** (Third edition). Having special reference to the diagnosis and treatment of diseases of the digestive organs. By **CHARLES D. AARON, Sc.D., M.D., F.A.C.P.** 904 pages, illustrated with 164 drawings, 48 roentgenograms and 13 coloured plates. Publishers: Lea & Febiger, Philadelphia and New York. 1921.

**HISTORY OF MEDICINE.** Third edition, with Medical chronology suggestions for study, and bibliographic data. By **LIEUT.-COL. FIELDING H. GARRISON, A.B., M.D.,** 942 pages. Publishers: W. B. Saunders Co., Philadelphia and London, 1921.

**CLINICAL DIAGNOSIS.** By **C. P. EMERSON, A.B.** 726 pages, with 156 illustrations. Fifth edition. Price \$7.50. Publishers: J. B. Lippincott Company, Philadelphia and London. Also at 201 Unity Bldg., Montreal 1921.

**THE SPLEEN AND SOME OF ITS DISEASES.** Based on, and containing the material of the Bradshaw Lecture delivered at the Royal College of Surgeons of England in December, 1920. By **SIR BERKELEY MOYNIHAN,** Leeds. Publishers: W. B. Saunders Co., Philadelphia. 129 pages. 1921.

**DISEASES OF THE SKIN.** Ninth edition. Complete treatise on diseases of the skin for advanced students and practitioners. By **HENRY W. STELWAGON, M.D., Ph.D.,** with the assistance of **HENRY K. GASKILL, M.D.,** attending Dermatologist to the Philadelphia General Hospital. 1313 pages, with 401 text illustrations and half-tone plates. Publishers: W. B. Saunders Company, 1921. Cloth, \$11.00 net. Canadian agents: The J. F. Hartz Co., Limited, Toronto, Ont.

**X-RAYS AND RADIUM IN THE TREATMENT OF DISEASES OF THE SKIN.** Correlating fully the specialized training of the dermatologist and roentgenologist, including the essential elements of physics and biology. By **GEORGE MILLER MACKEE, M.D.** 602 pages and illustrated with 250 engravings and 22 charts. Publishers: Lea & Febiger, Philadelphia and New York, 1921.

**SURGICAL ANATOMY.** By **WILLIAM FRANCIS CAMPBELL, A.B., M.D., F.A.C.S.** 681 pages, with 325 original illustrations. Third edition. Publishers: W. B. Saunders Co., Philadelphia and London, 1921. Cloth, \$6.50 net.

**THE PSYCHOLOGY OF MEDICINE.** Presenting concisely, but very clearly, the important contributions to psychology resulting from the practice of psychotherapeutics. By **T. W. MITCHELL, M.D.** Publishers: Methuen & Co., Ltd., London, Eng. 187 pages. Price 6s. net.

### THE WINNIPEG MEETING

The annual meeting of the Canadian Medical Association will be held in Winnipeg June 20th to 23rd inclusive, 1922. The present time is none too early to be thinking about your hotel reservations. The Committee on Hotels and Information are very anxious that medical men intending to come to Winnipeg should write early regarding hotel accommodation. The Chairman, Dr. Gordon S. Fahrni, 507 Boyd Building, Winnipeg, will be glad to receive inquiries.

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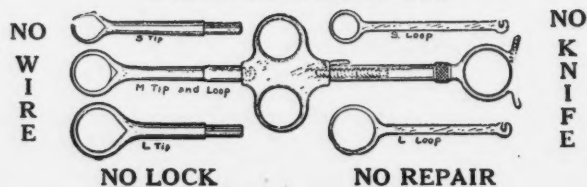
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